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### HOFFER & ASSOCIATES

Environmental and Hydrogeologic Services

# Hydrogeologists

P.O. Box 428 Waterbury, VT 05676 802/244-5573 fax 802/244-1123

November 29, 1995

Matthew Moran, Site Manager
Sites Management Section
VT DEC - Hazardous Materials Management Division
103 South Main Street/West Building
Waterbury, VT 05671-0404

Re: Site Investigation Report, Big John's Riverside Store, Jericho, SMS Site #95-1889

Dear Matt:

On behalf of S.B. Collins., Inc., we are submitting our site investigation report for Big John's Riverside Store in Jericho. Please give us a call if you would like to discuss our findings or recommendations.

Hoffer & Associates is moving our office to Berlin (Montpelier P.O.) on December 1, 1995. Our new address and phone numbers are given below.

Sincerely,

**HOFFER & ASSOCIATES** 

Jefferson P. Hoffer

Principal Hydrogeologist

cc: Carl Ruprecht, S.B. Collins

Address After 12/1/95

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# Hydrogeologists

SITE INVESTIGATION REPORT

BIG JOHN'S RIVERSIDE STORE JERICHO, VERMONT

**NOVEMBER 1995** 

P.O. Box 428 Waterbury, VT 05676 802/244-5573 • fax 802/244-1123

#### SITE INVESTIGATION REPORT

## BIG JOHN'S RIVERSIDE STORE JERICHO, VERMONT

#### **NOVEMBER 1995**

#### Prepared for:

Carl Ruprecht, UST Manager S.B. Collins, Inc. 54 Lower Welden Street St. Albans, Vermont 05478 (802) 527-0116

#### Prepared by:

Hoffer & Associates Consulting Hydrogeologists P.O. Box 428 Waterbury, Vermont 05676 (802) 244-5573

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#### 1.0 INTRODUCTION

This report presents the investigative procedures and results of a site investigation completed in October, 1995 at Big John's Riverside Store, a convenience store and gas station located in Jericho, Vermont. During excavation and closure of five underground storage tanks (USTs) in September, 1995, petroleum contaminated soil was observed overlying, beneath, and adjacent to the former USTs. Small amounts of floating free product were also detected in two of the existing site monitoring wells (see site assessment letter/report in Appendix A). Three replacement USTs were installed in the excavation immediately following removal of the former tanks. All USTs, piping and pumping equipment at this site is owned by S.B. Collins, Inc. (SBC) of St. Albans, Vermont.

At the request of SBC, Hoffer & Associates (H&A) initiated a site investigation under the Vermont Sites Management Section's "Expressway" program to evaluate the degree and extent of petroleum contamination at the Big John's Riverside Store property. Site investigation activities centered on the installation and sampling of seven monitoring wells, additional sampling of existing site wells and two domestic well points located in the basements of the convenience store and an adjacent residence, and an evaluation of the on-site stockpiled soil. Additional objectives of this site investigation included: identification of sensitive receptors; an evaluation of the potential effects of petroleum contamination on any receptors; and recommendations concerning the need for further investigation or remedial efforts at the site.

#### 2.0 SITE DESCRIPTION

#### 2.1 Site Location and History

Big John's Riverside Store is located on Route 15 in Jericho near the Underhill town line. Figure 1 presents a site location map. This site has been used for many years as a retail fuel and gasoline station. SBC has owned the fuel storage and dispensing equipment at this site since the mid 1970s. The property is positioned at the margin of a residential area and across Route 15 from agricultural fields and the Browns River, as indicated on the site vicinity map, Figure 2. A basemap of the site is provided as Figure 3.

Prior to excavation of the former USTs, at least seven monitoring wells had been installed in and around the tank and pump island areas. Four of these preexisting wells were either destroyed or otherwise concealed during tank excavation/installation activities.

Approximately 230 cubic yards of potentially contaminated soil was polyencapsulated and stockpiled behind (west of) the convenience store as a result of these activities (see Figure 3).

A summary of the recently installed USTs at this site is provided below.

Capacity (gals)	Type	
10,000	full	
10,000	split	
10,000	split	
	10,000 10,000	

Existing information on this site can be found in the following documents, which are included in Appendix A.

Letter/Report to Carl Ruprecht, UST Closure Site Assessment, Big John's Riverside Store, Jericho, Vermont, September 19, 1995, Hoffer & Associates, Consulting Hydrogeologists, Waterbury, Vermont.

Letter to Carl Ruprecht, Scope of Work/Cost Estimate for Site Investigation, Big John's Riverside Store, Jericho, Vermont, UST Facility ID #963, October 1, 1995, Hoffer & Associates, Consulting Hydrogeologists, Waterbury, Vermont.

Letter to Carl Ruprecht from Matthew Moran, Vermont Hazardous Materials Management Division, approving Scope of Work/Cost Estimate for Site Investigation, Big John's Riverside Store, Jericho, Vermont, UST Facility ID #963, October 12, 1995.

#### 2.2 Environmental Setting

The site is bordered to the east by Route 15. Across this road there are residences (Sleeper, Suder, Craig), hayfields, the Browns River and the Mills campground. To the north and south there are also residences (Stygles to the north and Mills to the south), while to the west there are woodlands and an airstrip. The Browns River is located approximately 800 feet south and southeast of the site and flows to the west southwest. Big John's Riverside Store is positioned at the edge of the river floodplain on a flat terrace between Browns River and The Creek, a tributary which intersects it to the southwest of the site.

According to Stewart's (1974) map of surficial materials, the area is underlain by lacustrine and marine sands and gravels, and recent stream alluvium. Bedrock materials in the vicinity of the site have been mapped as complex, highly metamorphosed schists and phyllites (Stewart, 1974).

#### 2.3 Potential Receptors

Municipal water is provided in the area by the Jericho-Underhill Water District. Not all properties in the area are connected to this system, which apparently terminates near Big John's store. Those residences to the north of Big John's as well as some of those across Route 15 are served by the municipal system, as is the store itself (see Figure 2). A shallow driven well point is located in the basement of Big John's, however, it has not been used for approximately seven years since the store was connected to the municipal system, and is no longer plumbed to the system.

The Grace Mills residence directly to the south of the site also has a shallow (15 - 20 feet) driven well point in the basement which (according to the homeowner), is periodically used as the source for household water. Apparently this house is also provided water from a deeper drilled well associated with another residence (Dwyer Mills) on the property approximately

550 feet to the southwest (see Figure 2). A valve in the basement of the Grace Mills residence is used to control from which source water is obtained.

According to Harold Sargent, Water Commissioner for the Jericho-Underhill Water District, the Crimmins residence located south of the Mills property is the last service connection on the Water District's line. Therefore, the source of water for those buildings further to the south (Edgerly, the airport) is uncertain.

Nearly all of the buildings and residences adjacent and downgradient from this site have basements into which vapors could penetrate and accumulate.

As mentioned above, the Browns River flows to the west southwest and is approximately 750 - 800 feet to the south of the site at its closest point. This is the nearest surface water feature to Big John's Riverside Store. Given the flat terrain in the valley setting where Big John's is situated, the hydraulic gradient between the site and Browns River is likely quite shallow, however, it is the probable discharge zone for groundwater in the surficial sediments beneath the site.

The Jericho-Underhill Water District maintains two gravel-packed wells completed in the unconsolidated sediments along Browns River. These wells are located approximately 3000 feet to the northeast of the site. The remaining water supply wells on file at the Water Supply Division in the vicinity of the site are all completed in bedrock, and most well logs indicate a considerable thickness of overburden materials. All well logs associated with this area available from the Water Supply Division's well log database are included in Appendix B. Figure 4 presents the locations of these domestic wells.

#### 3.0 SITE INVESTIGATION PROCEDURES

#### 3.1 Soil Boring/Monitoring Well Installation

Seven monitoring wells were installed at the site on October 5 and October 10, 1995. Locations of these wells (MW-100 series) and those pre-existing wells which survived tank excavation/installation activities (MW-1, MW-2, and MW-8) are shown on Figure 3. The seven new wells were installed by Adams Engineering of Underhill, Vermont, under the direction of H&A personnel. Adams Engineering's "mini-rig" drilling technique was used to advance the boreholes and install 1.5-inch PVC monitoring wells.

Soil borings were advanced by hydraulically vibrating a five foot hollow barrel sampling tube (2.375-inch ID) to the desired depth. This technique allows for continuous five foot sampling runs down to the terminal depth of the boring. After each sample run, the barrel was retracted from the borehole and the soil sample was extracted from the sampling tube. Soil samples were characterized for texture (USDA/SCS), color, moisture, and were screened with a photoionization detector (PID) to evaluate the relative level of soil contamination. Samples were placed in plastic ziplock bags for headspace readings.

Upon reaching the target depth of five feet below the water table, monitoring wells were constructed within the open borehole. Well construction consisted of ten feet of factory-slotted (0.010-inch), 1.5-inch diameter PVC well screen and PVC riser pipe to the ground surface. The well screen was positioned to intercept the water table, resulting in approximately five feet of screen both above and below the phreatic surface. This is to enable monitoring of potential floating free product and allow for seasonal water table fluctuations. A sandpack consisting of #1 factory-sorted sand was placed in the annular space from the base of the well to approximately one foot above the top of the screen. A seal, consisting of a minimum of one foot of granular bentonite, was placed above the sandpack. The remaining annular space was backfilled with cuttings generated during drilling. All wells were finished with steel manways that were cemented in place flush with the ground surface. Well development was accomplished with a peristaltic pump operating for at least two hours and evacuating approximately 10 gallons of groundwater from each location. Monitoring well

construction details for the newly installed wells are included on the soil boring/monitoring well logs, which are provided in Appendix C.

Given the loose and coarse nature of some of the materials encountered at this site, the boreholes tended to collapse below the water table. This necessitated manually (and sometimes mechanically) pushing the well down through the collapsed materials to the desired depth.

Horizontal and vertical control of the monitoring wells were obtained by Brooks Land Surveying of St. Albans, Vermont. Elevations were measured at the top of the PVC lip and at the ground surface at each well and were surveyed relative to an arbitrary on-site datum of 100.00 feet. This data is provided in Table 1.

#### 3.2 Water Level/Free Product Monitoring

Site water levels were measured on two occasions. The first round of measurements were associated with groundwater sampling activities on October 19, 1995. Water levels were again measured on November 3 to confirm groundwater flow directions. Measurements were obtained from the seven newly installed and three preexisting wells, and the well point in Big John's basement, using an electric sounding probe. Water levels were recorded relative to the top of the PVC risers and have been converted to elevations. Due to the possible presence of floating free product in MW-1, MW-2 and MW-8 based on previous observations and sample results, an A.R.T. interface probe was used to measure water levels and thickness of potential free product in these wells.

#### 3.3 Groundwater Sampling and Analysis

All site monitoring wells were sampled on October 19, 1995. In addition, the well points in the basements of the Mills residence and Big John's store were also sampled. Depths to water were measured from the top of the PVC or galvanized well pipe prior to sampling. Water levels and total well depths were used to calculate the volume of standing water present in each well. Prior to sampling, all the new wells were purged of three well volumes by bailing.

MW-8 went dry prior to bailing three well volumes. Wells MW-1 and MW-2 failed to recover at all after one bailer of water was removed and therefore samples were not obtained from these two locations. Purging of Big John's well point was accomplished with a Waterra™ inertial pump while sampling of this well employed a narrow (0.25-inch) diameter tube inserted into the pump tubing. Purging of the Mills' well consisted of turning on the kitchen faucet for a few minutes. The sample was then collected from a tap in the basement.

Purging and sampling of the monitoring wells was accomplished with polyethylene bailers. Samples were transferred from the bailers directly into 40 mL sample vials. Two vials were filled at each sampling location and were labeled with date, time, sample location and samplers' initials. The sample vials contained hydrochloric acid for sample preservation and were placed into a cooler with ice for storage and transport to the laboratory.

Quality assurance/quality control (QA/QC) samples included a trip blank, a field blank, and a blind duplicate. The trip blank consisted of two vials provided by the laboratory. These vials were transported to the site and handled in the same fashion as other samples. A field blank was collected at the site after sampling the last well, and was prepared by pouring deionized water provided by the laboratory into two sampling vials. The duplicate sample was collected from MW-102 and given a fictitious sample location (MW-A) and time. A laboratory chain-of-custody form and groundwater sampling data sheet were used to document the sampling event.

Groundwater samples were submitted to Scitest Laboratory Services, in Randolph, Vermont, and were analyzed for BTEX and MTBE using EPA Method 8020. Copies of the laboratory report, chain-of-custody and sampling data sheet are provided in Appendix D.

#### 3.4 Stockpiled Soil Screening

The stockpiled soil at the rear of Big John's property was evaluated to determine its approximate volume and degree of contamination on November 3, 1995. The dimensions of the pile were measured to provide a rough estimate of total volume. Six soil samples were

collected with a soil auger at regularly spaced intervals around the perimeter of the pile.

Samples were obtained about halfway up the sloping face of the pile from a depth of approximately 1.5 feet below the surface. The soil samples were placed in plastic ziplock bags for headspace readings with the photoionization detector to provide a relative degree of contamination.

#### 3.5 PID Measurements

During monitoring well installations and the stockpiled soil evaluation, a Photovac MicroTIP HL-2000 photoionization detector, equipped with a 10.6 eV lamp, was used to evaluate organic vapor concentrations. Before each day's activities, the PID was calibrated and set to respond to isobutylene. Readings are reported as parts per million (ppm), and represent ppm equivalents relative to isobutylene.

#### 4.0 SITE INVESTIGATION RESULTS

#### 4.1 Monitoring Well Installations

#### 4.1.1 Soil Samples

The soil boring/monitoring well logs provided in Appendix C include descriptions and interpretations of soil samples collected during the soil boring efforts. The general soil profile of soil materials encountered at this site was quite similar at all seven locations investigated. Given the setting of this property on a relatively flat terrace between Browns River and The Creek, the degree of homogeneity was not surprising. The soil profile generally consisted of medium to coarse sand and gravel, with occasional lenses of finer sands and silts to a depth of 13 - 16 feet below ground surface (BGS). These materials were fluvial in origin. Below this depth the soil materials became finer with silts and fine sands predominating, which are interpreted as glaciolacustrine deposits. Bright red and reddish-brown staining (mottling) of some of the coarse materials was observed at MW-103, MW-104, MW-106 and MW-107 at depths of approximately 7-9 feet BGS. This is likely indicative of the depth to seasonal high water.

#### 4.1.2 PID Screening of Soil Samples

PID screening results for soil samples collected during the soil boring program are included on the soil boring/monitoring well logs in Appendix C. Significantly elevated PID readings (100-1200 ppm) indicative of petroleum contamination were detected at MW-102 and MW-107. Slightly elevated readings (< 55 ppm) were detected at all other boring locations.

#### 4.2 Depth to Water / Free Product Measurements

Table 1 presents the depth to water measurements recorded in site monitoring wells on October 19 and November 3, 1995, and converted to groundwater elevations. Ground surface elevations at this site vary only slightly across a range of 3.5 feet. Groundwater elevations range even less, with only a 1.49 foot maximum difference between the highest (MW-101) and lowest (MW-107) water table elevations recorded at the ten monitoring wells. A water table map for the October 19, 1995 is provided as Figure 5. Flow direction is almost due south towards the Browns River where it passes the site at its closest approach. The

average hydraulic gradient across the site is 0.0062, consistent with the flat topography in the general area.

#### 4.3 Analytical Results

Table 2 presents the analytical results for the groundwater sampling round completed on October 19, 1995. These results are presented by well location in Table 3. Quite high concentrations of MTBE and BTEX were found in MW-8, MW-102 and MW-107, with concentrations of all constituents ranging from a low of 700 to greater than 16,000 micrograms per liter (ug/L). MW-108, the well with the highest concentrations, is directly adjacent to the USTs. Minor amounts of these compounds were found at all other monitoring locations, with levels generally below 20 ug/L. These results have been combined with analytical results from the site assessment and used to generate isoconcentration maps for two compounds, toluene and MTBE. These maps are presented as Figures 6 and 7 respectively.

Both QA/QC blank samples filled and analyzed (field and trip) were below detection limits for all compounds analyzed. The results from the blind duplicate sample filled at MW-102 was comparable to those obtained directly from MW-102 (see Table 2).

#### 4.4 Stockpiled Soil Screening

Based on a rough measurement of the dimensions of the stockpiled polyencapsulated soil located at the western boundary of the site, this pile contains approximately 230 cubic yards of material. Six soil samples were collected by soil auger at various locations throughout this pile for headspace screening with the PID. The results of this screening effort are provided below:

Sample	PID headspace (ppm)
S-1	26.5
S-2	21.0
S-3	16.0
S-4	8.5
S-5	32.0
S-6	7.3

#### 5.0 DISCUSSION OF RESULTS

#### 5.1 Site Hydrogeology

The position of this site on the flat terrace between Browns River and The Creek result in quite a homogeneous soil profile at all seven locations investigated with soil borings. Consequently the groundwater elevations across this site are very consistent, with a regular hydraulic gradient of 0.0062 and relatively straight, equally spaced piezometric contours (see Figure 5). Depths to water average approximately 10 feet below the ground throughout the site, which puts the water table within the layer of medium to coarse sands. As indicated on Figure 5, this leads to a southerly flow direction for shallow groundwater, which is consistent with overall local topography despite its subtlety. Flow is directly towards Browns River at the closest point where it passes the site. Given the relatively shallow hydraulic gradient across the site, this surface water feature is the likely discharge zone for groundwater located within the unconsolidated sediments.

Based on the materials observed during the soil boring program and the hydraulic gradient measured, and using literature values for an estimate of hydraulic conductivity and porosity (Freeze & Cherry, 1979), groundwater flows through the medium to coarse sands and gravel above 15 feet BGS at a rate of approximately 18 - 850 feet per year (ft/yr). This is the layer within which the water table was observed. Below 15 feet, groundwater likely moves through the fine sands and silts much more slowly, flowing at a maximum rate of approximately 13 ft/yr, and as slowly as 0.25 ft/yr. These estimated flow rates are seepage velocities determined by dividing the product of the hydraulic conductivity and gradient by the effective porosity. A range of hydraulic conductivity of 3 - 140 ft/day in the sand and 0.03 - 1.5 ft/day in the silt were used. Field measurements would be required to confirm these ranges.

#### 5.2 Extent of Contamination

High concentrations of dissolved-phase BTEX and MTBE were recorded during the October 19 sampling event in MW-8, MW-102 and MW-107 (see Figures 6 & 7). All other monitoring wells at this site, including the two driven well points, exhibited very low concentrations of some of the constituents of BTEX and MTBE. The well exhibiting the

highest concentrations, MW-8, is positioned adjacent to the former UST locations while the other two wells are both downgradient from this area. Very high concentrations of dissolved MTBE and BTEX were also measured in MW-1 and MW-2 during the September 12 sampling effort (see Table 3). These wells are positioned at either end of the pump island and are directly downgradient from the former UST area.

Although free product was observed in bailed samples from two preexisting monitoring wells during the site assessment (see Appendix A), it has not been conclusively detected at the site since. During depth to water/free product monitoring in MW-1 and MW-2 on October 19, a small amount of free product (< 0.01 feet) was encountered in these wells with an interface probe, but no free product was observed in water bailed from these wells.

PID screening of soils during UST excavation and removal, and laboratory analysis of groundwater samples indicate that gasoline, and possibly other petroleum products, have been released to the environment at this site. Although obvious holes were not observed in the excavated USTs, petroleum contaminated soil above, adjacent and beneath the tanks was evident. Gasoline and other fuel products have been stored in underground tanks at this site for at least 27 years, and possibly longer, therefore the timing of any particular release is uncertain. Release of contaminants may have occurred from UST overfilling, piping or pump leakage, customer spillage, an undetected but damaged UST, previously removed USTs, or a combination of these factors.

Given the presence of contamination in MW-107, it is apparent that dissolved petroleum has moved off Big John's property to the south. This is consistent with groundwater flow patterns in the area. The plume appears quite narrow based on the low levels detected in both MW-105 and MW-106 (see Figures 6 & 7). Considering the relatively high levels of dissolved contaminants found in MW-107, and in light of the coarse grained materials along the water table, it's likely that contaminants have moved even further to the south. A long and narrow plume would be expected given these materials and the groundwater flow rates associated with them.

#### 5.3 Potential Receptors

The two driven well points in the basements of Big John's store and the adjacent Mills residence are the closest water supply wells in the immediate vicinity of the site. Very low concentrations of MTBE were recorded in both these wells (10 ug/L in Big John's, and 3 ug/L in Mills), and 1 ug/L of benzene was detected in Big John's point. These levels are below regulatory thresholds for each of these constituents. Furthermore, Big John's Riverside Store is connected to municipal water and therefore not using the well point. Water can be provided to the Mills residence from a drilled well 550 feet to the southwest. Although the house is currently unoccupied, a letter has been written to the homeowner suggesting that the alternate source be used as a precautionary measure. This letter is provided in Appendix A.

Based on the known location of water supply wells in the area, and current understanding of contaminant extent and groundwater flow direction, no other water supply wells appear to be at risk from the contamination documented at this site. The basement of Big John's Riverside Store is partially above the main plume of dissolved contamination, and therefore may be at risk from the accumulation of petroleum vapors.

Groundwater flows to the south from this site toward Browns River, which is approximately 800 feet away. Contamination has crossed Route 15 as evidenced by the results from MW-107. The southerly extent of this contamination is currently unknown. As such, whether contamination has reached Browns River and, if so, the degree of impact on this potential receptor is unclear.

#### 6.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### 6.1 Summary and Conclusions

A site investigation was implemented at Big John's Riverside Store in Jericho to determine the extent of soil and groundwater contamination. Releases of petroleum products has resulted in contamination of both soil and groundwater at this site. Inspection during UST removal and the soil boring program, and analytical results of groundwater sampling indicate the UST area and associated pump island as the likeliest source areas of the contamination documented during this investigation.

Based on existing data, dissolved contaminants have migrated downgradient from the suspected source area and off-site in a southerly direction. Two shallow well points have been slightly affected by this contamination, although the concentrations do not exceed regulatory threshold limits. No other drinking water supplies appear to be at risk at this time. The impact on Browns River to the south of the site has not been determined.

#### 6.2 Recommendations

Existing levels of groundwater contamination at this site should be periodically monitored to document any increase or decrease, and respond accordingly. In addition, in order to establish the downgradient extent of contamination and possible impact on Browns River and indoor air quality, the following activities are recommended:

- Perform a PID survey in the basement of Big John's store;
- Install 2 4 additional monitoring wells (locations on Figure 8) and sample;
- Perform quarterly groundwater sampling in all existing monitoring wells and the two driven well points.

The estimated costs to perform these activities are provided on Table 4. We recommend using Adams Engineering's "mini rig" methodology for installation of proposed wells due to Adams' proximity to the site, and overall low cost.

#### REFERENCES

Freeze, R. A., and Cherry, J. A., 1979, *Groundwater*, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 604 p.

Stewart, D. P., 1974, Geology for Environmental Planning in the Milton-St. Albans Region, Vermont, Vermont Geological Survey, Water Resources Department, Environmental Geology No. 5., Montpelier, VT., 49 p.

TABLE 1
Groundwater elevation measurements,
Big John's Riverside Store, Jericho, Vermont, SMS Site # 95 -1889.

### DEPTH TO WATER MEASUREMENTS (feet below TOC)

WELL ID	Elev. of Ground Surface (ft)	Elev. of TOC (feet)	TOC relative to Ground Surface (ft)	10/19/95	11/3/95
MW-I	99.56	99.31	-0.25	11.07	10.25
MW-2	99.51	99.23	-0.28	10.81	9.96
MW-8	99.23	98.91	-0.32	10.10	9.25
MW-101	96.50	96.00	-0.50	6.85	5.93
MW-102	99.15	98.58	-0.57	10.22	9.37
MW-103	99.04	98.56	-0.48	9.44	8.58
MW-104	98.02	97.71	-0.31	9.45	8.57
MW-105	98.66	98.15	-0.51	10.12	9.27
MW-106	100.00	99.70	-0.30	11.81	11.00
MW-107	99.26	99.05	-0.21	11.39	10.62
BJs Well Point		91.59		2.92	2.06

#### **GROUNDWATER ELEVATIONS (feet)**

WELL ID	Elev. of Ground Surface (ft)	Elev. of TOC (feet)	TOC relative to Ground Surface (ft)	10/19/95	11/3/95
MW-1	99.56	99.31	-0.25	88.24	89.06
MW-2	99.51	99.23	-0.28	88.42	89.27
MW-8	99.23	98.91	-0.32	88.81	89.66
MW-101	96.50	96.00	-0.50	89.15	90.07
MW-102	99.15	98.58	-0.57	88.36	89.21
MW-103	99.04	98.56	-0.48	89.12	89.98
MW-104	98.02	97.71	-0.31	88.26	89.14
MW-105	98.66	98.15	-0.51	88.03	88.88
MW-106	100.00	99.70	-0.30	87.89	88.70
MW-107	99.26	99.05	-0.21	87,66	88.43
BJs Well Point		91.59		88.67	89.53

Notes:

TOC = top of casing (pvc)

Elevations are relative to on-site datum (MW-6, 100.00 feet)

#### TABLE 2

Groundwater sampling results for October 19, 1995, Big John's Riverside Store, Jericho, Vermont, SMS Site #95-1889.

#### October 19, 1995

(results in ug/L)

WELL ID	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
MW-8	1860	10600	1060	16400	12200
MW-101	1	2	<1	<1	9
MW-102	678 / 682	3540 / 4090	1240 / 1340	7620 / 8690	686 / 669
MW-103	15	3	<1	7	4
MW-104	2	2	<1	<1	14
MW-105	15	14	6	21	14
MW-106	<1	3	<1	5	3
MW-107	1380	3170	994	4420	1630
Big John's Point	1	≼l	<1	<1	10
Mill's Point	<1	<1	ব	<1	3
Trip Blank	<1	<1	<1	<1	<1
Field Blank	<li>1</li>	<1	<1	<1	<1

#### Notes:

< 1 = below a detection level of 1 678 / 682 = sample result / blind duplicate result

#### REGULATORY THRESHOLDS

(ug/L)

Standard	Benzene	Toluene	Ethylbenzene	Xylenes	MBTE
VT GES	5	2420	680	400	-
VT PAL	0.5	1210	340	200	_
VHA	1	-	-	-	40
MCL	5	1000	700	10000	-

#### Notes:

VT GES = Vermont Groundwater Enforcement Standard
VT PAL = Vermont Preventative Action Limit
VHA = Vermont Health Advisory
MCL = Maximum Contaminant Level

#### TABLE 3

# Groundwater analytical data by well, Big John's Riverside Store, Jericho, Vermont, SMS Site #95-1889. (results in ug/L)

#### MW - 1

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
9/12/95	3,760	14,300	2,220	11,800	5,890

#### MW - 2

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
9/12/95	5,750	16,300	2,260	11,300	11,600

#### MW-8

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
10/19/95	1,860	10,600	1,060	16,400	12,200

#### MW-101

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
10/19/95	1	2	< <u> </u>	<1	9

#### MW-102

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
10/19/95	678	3540	1240	7620	686

#### MW-103

Sample Date	Benzene	Toluene		Xylenes	MTBE
10/19/95	15	3	<1	7	4

#### MW-104

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
10/19/95	2	2	<1	<1	14

#### TABLE 3 (continued)

# Groundwater analytical data by well, Big John's Riverside Store, Jericho, Vermont, SMS Site #95-1889. (results in ug/L)

#### MW-105

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
10/19/95	15	14	6	21	14

#### MW-106

1	Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
	10/19/95	<1	3	<1	5	3

#### MW-107

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
10/19/95	1380	3170	994	4420	1630

#### Big John's Point

Sample Date Benzene		Toluene Ethylbenzene		Xylenes	MTBE
9/12/95	<1	<1	<	<1	<1
10/19/95	1.	<1	<1	<1	10

#### Mill's Point

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
10/19/95	<1	<1	<	·	3

### QA/QC

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
10/19/95					
Duplicate (MW-102)	678 / 682	3540 / 4090	1240 / 1340	7620 / 8690	686 / 669
Trip Blank	<b>~1</b>	<1	ব	<1	<1
Field Blank	<i< th=""><th>≤1</th><th>&lt;1</th><th>&lt;1</th><th></th></i<>	≤1	<1	<1	

#### Notes:

<1 = Less than a detection limit of 1 678 / 682 = Sample result / field duplicate result

#### **TABLE 4**

Cost estimate for additional site investigation activities, Big John's Riverside Store, Jericho, Vermont, SMS Site #95-1889.

**LABOR** 

		· · · · · · · · · · · · · · · · · · ·		
TASK	Staff	Hours	Rate	Amount
Monitoring Well Drilling	SCF	10.00	\$35.00	\$350.00
Water Levels/Well Development	SCF	6.00	\$35.00	\$210.00
Groundwater Sampling - All Wells	SCF	8.00	\$35.00	\$280.00
Well Logs	SCF	2.00	\$35.00	\$70.00
Data Entry	НР	4.00	\$15.00	\$60.00
Figures/Quarterly Report Review	JPH	4.00	\$40.00	\$160.00
Quarterly Report Preparation	SCF	24.00	\$35.00	\$840.00
Quarterly Report Preparation	НР	4.00	\$15.00	\$60.00

SUB-TOTAL LABOR \$2,030.00

#### **EXPENSES**

EXPE	NSES			-
Quantity	Rate	Mark Up	Amount	i sin
50	\$0.28	\$0.00	\$14.00	- H2, W
50	\$0.28	\$0.00	\$14.00	(006,40
50	\$0.28	\$0.00	\$14.00	226,40 - HE 14
4	\$21.10	\$0.00	\$84.40	16.90
1	\$75.00	\$0.00	\$75.00	2256.40 - Hall
1	\$25.00	\$0.00	\$25.00	<u> </u> /
				·
1	\$1,350.00	\$0.00	\$1,350.00	
20	\$55.00	\$0.00	\$1,100.00	
1	\$500.00	\$0.00	\$500,00	
	Quantity 50 50 50 4 1 1 1	Quantity         Rate           50         \$0.28           50         \$0.28           50         \$0.28           4         \$21.10           1         \$75.00           1         \$25.00           1         \$1,359.00           20         \$55.00	50         \$0.28         \$0.00           50         \$0.28         \$0.00           50         \$0.28         \$0.00           4         \$21.10         \$0.00           1         \$75.00         \$0.00           1         \$25.00         \$0.00           1         \$1,350.00         \$0.00           20         \$55.00         \$0.00	Quantity         Rate         Mark Up         Amount           50         \$0.28         \$0.00         \$14.00           50         \$0.28         \$0.00         \$14.00           50         \$0.28         \$0.00         \$14.00           4         \$21.10         \$0.00         \$84.40           1         \$75.00         \$0.00         \$75.00           1         \$25.00         \$0.00         \$25.00           1         \$1,350.00         \$0.00         \$1,350.00           20         \$55.00         \$0.00         \$1,100.00

SUB-TOTAL EXPENSES \$3,176.40

TOTAL ESTIMATED PROJECT COST \$5,206.40

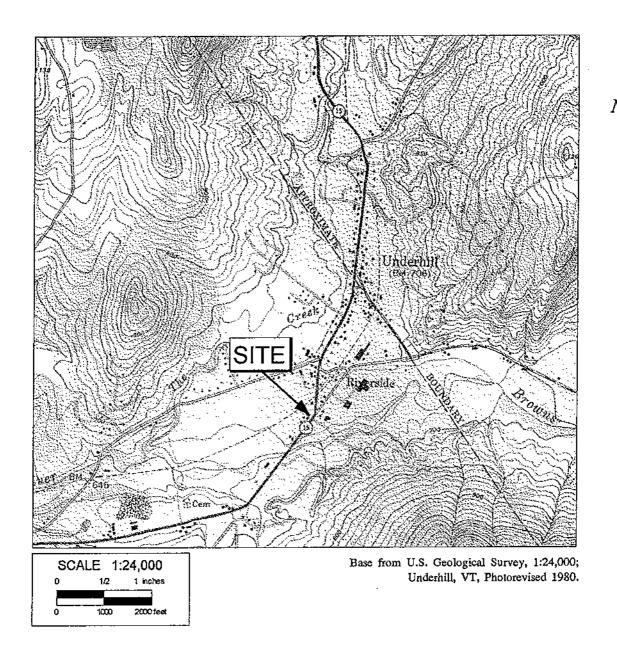
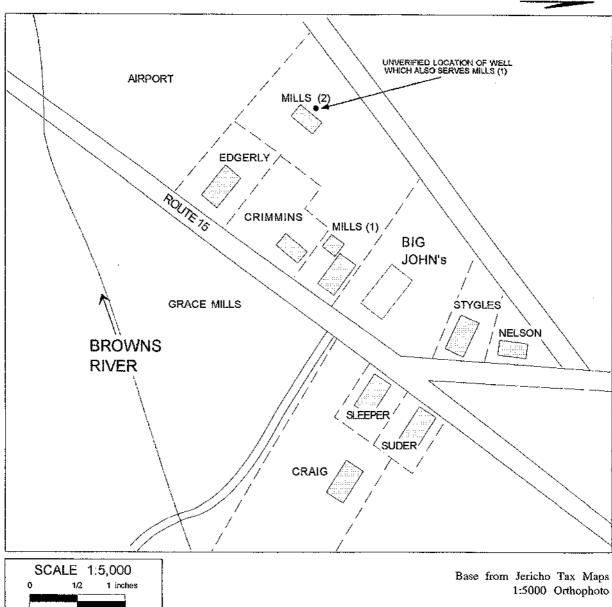


FIGURE 1
USGS topographic map showing location of Big John's Riverside Store,
Jericho, Vermont, SMS Site #95-1889.

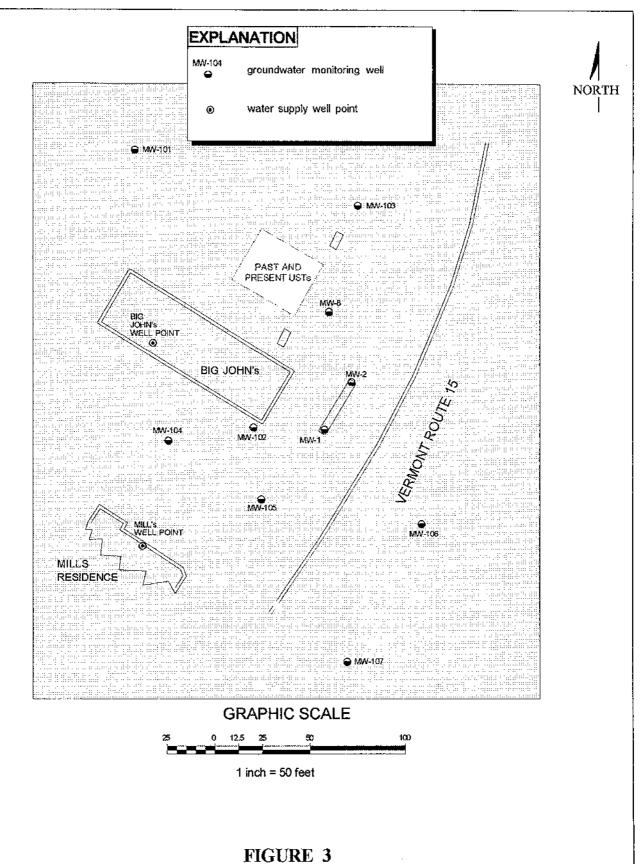




## FIGURE 2

416.7 feet

Site vicinity map, Big John's Riverside Store, Jericho, Vermont, SMS Site #95-1889.



Site basemap, Big John's Riverside Store, Jericho, Vermont, SMS Site #95-1889.

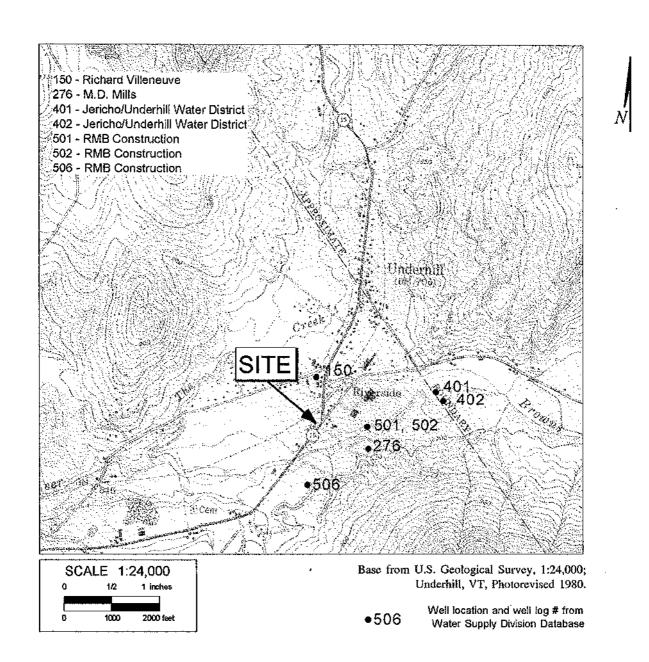


FIGURE 4

USGS topographic map showing water wells in the vicinity of Big John's Riverside Store,
Jericho, Vermont, SMS Site #95-1889.

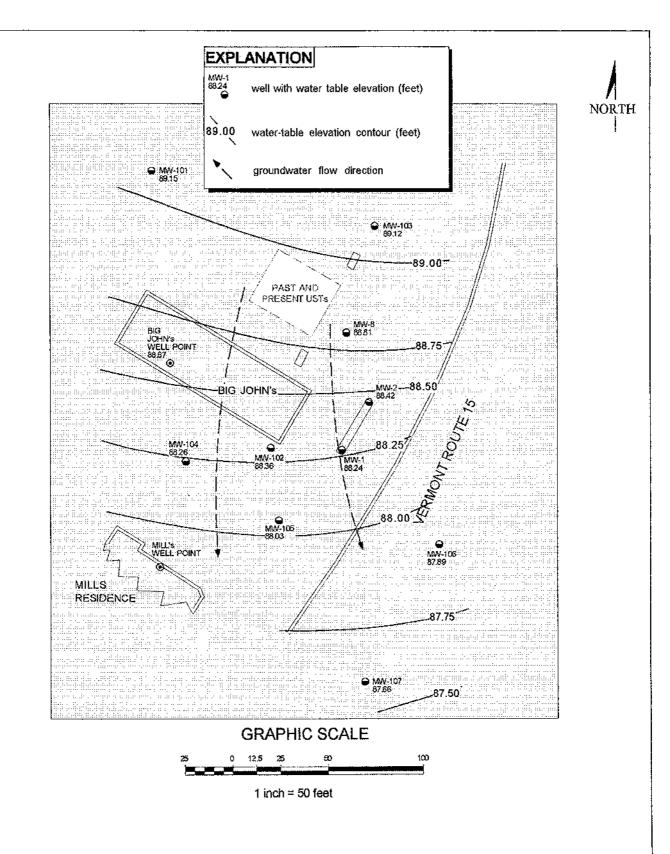
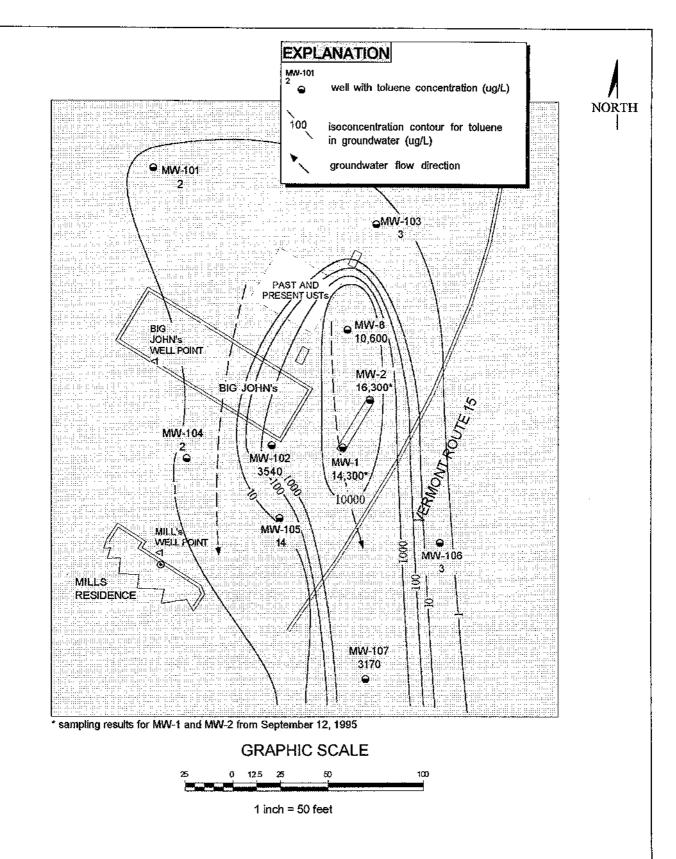
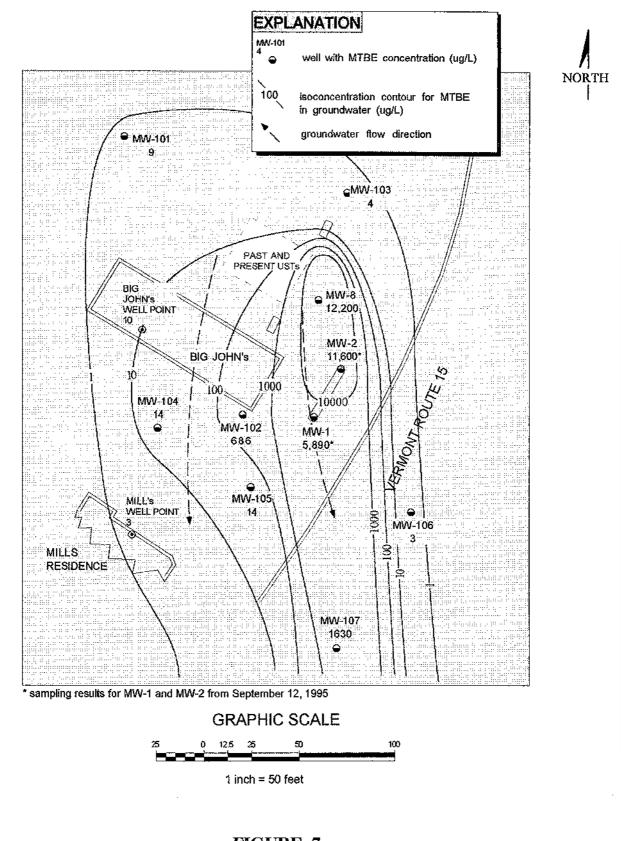


FIGURE 5
Water-table map for October 19, 1995, Big John's Riverside Store,
Jericho, Vermont, SMS Site #95-1889.



#### FIGURE 6

Isoconcentration contour map for toluene in groundwater, October 19, 1995, Big John's Riverside Store, Jericho, Vermont, SMS Site #95-1889.



#### FIGURE 7

Isoconcentration contour map for MTBE in groundwater, October 19, 1995, Big John's Riverside Store, Jericho, Vermont, SMS Site #95-1889.

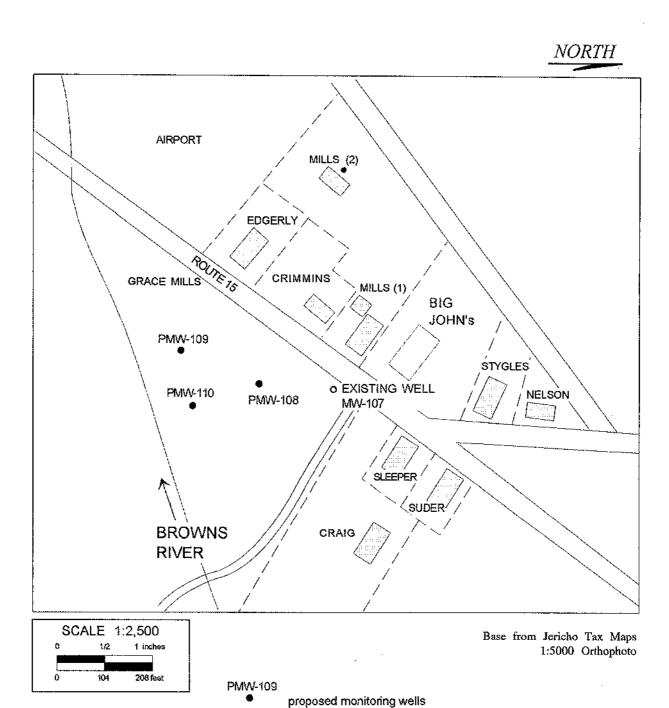


FIGURE 8
Proposed monitoring well locations, Big John's Riverside Store,
Jericho, Vermont, SMS Site #95-1889.

# Consulting

### \*HOFFER & ASSOCIATES\*

Environmental and Hydrogeologic Services

# Hydrogeologists

P.O. Box 428
Waterbury, VT 05676
802/244-5573
fax 802/244-1123

September 19, 1995

Carl Ruprecht, UST Manager S.B. Collins, Inc. 54 Lower Welden Street St. Albans, Vermont 05478

Re: UST Closure Site Assessment, Big John's Riverside Store, Jericho, Vermont UST Facility ID #963

#### Dear Carl:

This letter presents my site assessment for the closure of five underground storage tanks (USTs) at Big John's Riverside Store in Jericho during September 11-13, 1995. The Vermont UST Program tank pull forms are enclosed for you to complete and submit to the State. I have also enclosed an additional copy of this report and an additional set of photographs for submittal to the State. Site maps, data tables, analytical results, and well logs are attached to this letter. A site location map is provided on Figure 1. Figure 2 presents a site vicinity map which includes property boundaries.

A summary of the five USTs closed at the site is as follows:

$I\!D$	Height (in.)	Capacity(gals.)	Contents	Age (years)
T-1	48"	2000	Kerosene	8
T-2	64"	4000	Super NL	9
T-3	64"	4000	No Lead	9
T-4	64"	2000	Diesel	27
T-5	64"	3000	Special	27

The former locations of these tanks are shown on Figure 3.

I was present at the site on September 11 to witness the excavation of soil overlying the tanks. On September 12, Environmental Products & Services (EPS) cleaned the tanks in place. I also collected groundwater samples from the existing monitoring wells on this date. On September 13, I was present at the site to witness the removal of the USTs from the excavations. I also visited the site on September 14 to observe the excavation for the replacement USTs. My efforts and observations during these activities are summarized in this letter.

### TANK REMOVALS, REPLACEMENT UST DIGGING, AND SOIL SCREENING

Soil excavated during the UST closures and other digging at the site was screened with a portable photoionization detector (PID) to evaluate the degree and extent of petroleum contamination. Both a MicroTIP<sup>1</sup> (MT) and an HNU<sup>2</sup> were used. Soils were screened using two methods; by placing the instrument tip directly above excavated soil (direct reading) and by placing soil samples in plastic zip-lock bags and then inserting the instrument tip (headspace reading).

The former locations of the five USTs are shown on Figure 3. Soils overlying tank T-1, (2000-gallon kerosene) gave direct readings of 20 to 30 ppm - MT. Soils excavated from the top of tank T-2 (4000-gallon gasoline) gave direct readings of over 1000 ppm - MT. Similarly high PID readings were obtained in soil overlying the remaining three tanks. Backfill soil overlying the tanks was generally medium and coarse-grained sand.

The tanks were cleaned by EPS on September 12, 1995. The tanks were removed from the ground on September 13, 1995. I arrived at the site at 9 AM on September 13. All of the tanks had been removed from the ground and tank T-5 had been removed from the site. The remaining four tanks were visually examined to assess their condition. Tanks T-1, T-2, and T-3 were in good condition with no signs of corrosion. Tank T-4, the 27-year old diesel tank, was in fair condition. No holes were observed in the tank. Tank T-5 was reportedly in similar condition to tank T-4.

After inspecting the USTs, I took some PID readings of soil in the UST pits. As illustrated on Figure 3, there were two separate excavations. The first one contained tanks T-1, T-2, and T-3. Soils on the base of this pit gave direct PID readings of between 1000 and greater than 2500 ppm-MT. Similarly high PID readings were obtained in the second pit, which had contained tanks T-4 and T-5. The native soil profile exposed during the removal of the USTs (on the base and sidewalls of the excavation) included medium and coarse-grained sand to a depth of about 7 feet, underlain by coarse sand and well-rounded and well-sorted gravel. Thus, both the tank bedding material and the native soil at the site were coarse-grained sediments.

All soil excavated for the removal of tanks T-4 and T-5 were placed directly back into the second pit. Soil initially excavated during the removal of tanks T-1, T-2, and T-3 was segregated on the basis of relative contamination. Soil within the first few feet above the USTs was temporarily staged alongside the excavation (<20 ppm-MT). After the tanks were removed, digging continued in this pit for the replacement USTs. This soil was

Photovac MicroTIP HL-2000, 10.6 eV lamp, calibrated with and set to respond to isobutylene. Readings are reported in parts per million (ppm), equivalent to isobutylene.

<sup>&</sup>lt;sup>2</sup> HNU Systems PI-101, 10.2 eV lamp, calibrated with isobutylene and set to respond to benzene. Readings are reported in parts per million (ppm), equivalent to benzene.

Carl Ruprecht September 19, 1995 Page 3

generally "hot" (>20 ppm-MT) and was placed on plastic at the rear of Big John's property. A preliminary screening effort of this soil (about 20 cubic yards) included the collection of six samples for headspace screening. The results were as follows:

Sample PID	Headspace (ppm -MT)	
<u>S-1</u>	10.8	
S-2	1029	
S-3	47	
S-4	14.4	
S-5	<i>56.5</i>	
S-6	139	
Average	220 (MicroTIP)	

Near the conclusion of site activities, the soil pile was screened again on September 19, 1995. The estimated volume of the soil stockpile is 275 to 300 cubic yards. A hand auger was used to collect samples from seven locations on the stockpile. Samples were collected from 6 to 12 inches below the surface. Results were as follows:

Sample	PID Headspace (ppm -HNU)
S-1	40
S-2	36
S-3	180
S-4	152
. S-5	<i>185</i>
S-6	200
S-7	260
Average	150 (HNU)

In order to excavate to the depth needed for the installation of the replacement USTs, water in the excavation was pumped to a small recharge pit northeast of the excavation. Figure 4 includes the location of the recharge pit.

#### GROUNDWATER MONITORING

A total of seven monitoring wells existed at the site prior to the UST removals. During the UST removals, at least two of these wells were destroyed. Prior to the tank removals, the wells were gauged and sampled. An A.R.T. interface probe was utilized to monitor for free product. Although no measurable (>0.01 feet) amount of free product were detected, bailed samples from two of the wells did exhibit floating free product. A sheen was noted in the sample from MW-3, and a small layer of floating free product (< 0.01 feet) was observed in a bailer sample from MW-7. On September 12, water samples were obtained from MW-1, MW-2, MW-4, and MW-6. Samples were collected with new

Carl Ruprecht September 19, 1995 Page 4

polyethylene bailers for each well. The wells where free product had been detected (MW-3 and MW-7) were not sampled. In addition, monitoring well MW-5 was covered by excavated soil and could not be sampled. A sample was also obtained from a shallow well point in the basement of Big John's. According to Big John's owner John Kordish, the well was used up until about seven years ago when the store was connected to the municipal water line. The well consists of a 1.5-inch galvanized well point. The well was sampled using a Waterram foot valve and sampling tube. The water samples were analyzed for BTEX and MTBE by EPA Method 8020 by Scitest Laboratory Services.

Well elevations were obtained by Adams Engineering of Underhill, Vermont. Water levels and converted elevations are given on Table 1, and a water-table map is provided on Figure 5. The water levels depict a somewhat complicated gradient, and suggest the presence of a groundwater trough through the middle of the site. The highest water levels were observed in the monitoring wells near the front pump island, MW-1 and MW-2.

Analytical results for the groundwater samples are summarized on Table 2. Very high concentrations of dissolved BTEX and MTBE were detected in MW-1 and MW-2, which are situated at both ends of the gasoline pumps. Lower concentrations of BTEX and MTBE were also detected in MW-4 and MW-6. No contaminants were detected in the shallow well located in the basement of Big John's. Figure 6 presents an isoconcentration map for benzene in site groundwater.

#### EXTENT OF CONTAMINATION AND SOURCE OF RELEASES

Although high PID readings were obtained for soil surrounding and underlying the removed USTs, no holes were found in the tanks. Tank bedding and native soil consisted of coarse sediments, and no discrete "hot" zones were visible or detected via PID screening. Floating free product was evident in MW-3 and MW-7, and high concentrations of dissolved BTEX and MTBE were detected in site groundwater. The concrete, asphalt, and soil surrounding the former diesel and kerosene pump dispensers were stained, indicating that spills of kerosene and diesel had occurred at the surface. The gasoline pump island had yet to be excavated at the time of this report, although very high levels of dissolved BTEX and MTBE were detected in MW-1 and MW-2, which are located at the ends of the pump island. These observations indicate that releases of gasoline occurred at the site. Releases may have occurred through spillage and overfilling at the pumps, piping or dispenser leakage, or from tank overfilling. With the exception of a small area between the former kerosene pump and the building, the area around the pumps and former fill pipes was covered with asphalt or concrete (around fill pipes).

#### POTENTIAL RECEPTORS

The site is situated in a valley setting between two rivers, the Brown River and The Creek. Both of these rivers flow eastward in the vicinity of the site. At its nearest reach, the Brown River is about 1500 feet southwest of Big John's. Although the groundwater flow

Carl Ruprecht September 19, 1995 Page 5

direction at the site has not been fully characterized, it appears that site contamination does not constitute a major threat to surface water.

Municipal water is provided in the vicinity by the Jericho-Underhill Water System, although not all residences/businesses near Big John's are connected to the system. The neighboring property to the east (Grace Mills), is served by a well which also services her son's residence. The location of this well is shown on Figure 2. The well log for this well (enclosed) indicates the well is completed within fine gravel, with casing (open-ended) to a depth of 118 feet. The well log indicates the following stratigraphy:

Depth (feet)	Stratigraphy -
0 - 12	sandy gravel
12-112	gray sand and clay
112-124	fine gravel

Figure 7 presents well locations for other private wells identified in the Water Supply Section's well-inventory database. The Jericho/Underhill Water District has two wells completed in unconsolidated sediments along Browns River. These wells are located more than 3000 feet upslope from the site, and do not appear to be at risk from site contamination. The remaining water supply wells in the vicinity are all completed in bedrock, and the well logs indicate a considerable thickness of overburden material.

Based this preliminary information, contamination at the site does not appear to pose an immediate threat to drinking water supplies. The only well that appears to warrant further evaluation is the Mills well, which is located about 800 feet northwest of Big John's. Determination of the groundwater flow direction in the shallow aquifer present at the site (as well as extent of plume), will enable a more detailed assessment of potential impacts of site contamination on drinking water supplies in the area.

No gasoline vapors were detected in the basement of Big John's, and no positive readings were obtained with the PID.

#### CONCLUSIONS AND RECOMMENDATIONS

Elevated PID readings were detected in soil during the closure of five USTs at Big John's Riverside Store in Jericho, Vermont. Laboratory analysis of groundwater samples collected from existing monitoring wells indicates the presence of dissolved BTEX and MTBE. In addition, floating free product (<0.01 feet) was detected in two of the existing monitoring wells. No holes were found in any of the five tanks. Staining was observed near the former diesel and kerosene pumps. The impacts to soil and groundwater at the site are likely the combined result of tank overfilling, undetected piping or dispenser leakage, and customer spillage.

Carl Ruprecht September 19, 1995 Page 6

Groundwater at the site is present at a depth of about 10 feet within coarse sand and gravel. The water levels depict a somewhat complicated gradient, and suggest the presence of a groundwater trough through the middle of the site. The highest water levels were observed in the monitoring wells near the front pump island, MW-1 and MW-2.

About 275 - 300 cubic yards of petroleum contaminated soil is currently encapsulated at the rear of the property.

Although the extent of groundwater contamination has not been characterized, there does not appear to be an immediate threat to water supplies or surface water. In addition, there are no indications that other sensitive environmental receptors are at risk.

Based on these observations, we recommend proceeding with a site investigation to evaluate the extent of contamination at the site, to collect information on the site hydrogeology, and to evaluate the threat to receptors.

If you have any questions, please give us a call.

Sincerely,

HOFFER & ASSOCIATES

Jefferson P. Hoffer

Principal Hydrogeologist

enc.

TABLE 1
Groundwater elevation measurements,
Big John's Riverside Store, Jericho, Vermont, UST Facility ID 963.

# DEPTH TO WATER MEASUREMENTS (feet below TOC)

WELL ID	Elev, of TOC (feet)	9/11/95	9/13/95
MW-I	106,48	10,38	10.38
MW-2	106,54	10,15	10.14
MW-3	105.80	10.54	10.52*
MW-4	105.65	10.30	10.38
MW-5	105.76	10.18	10,30
MW-6	105.86	10.03	10,12
MW-7	105.70	10.25*	10.21*

#### GROUNDWATER ELEVATIONS (feet)

WELL ID	Elev. of TOC (feet)	9/11/95	9/13/95
MW-1	106.48	96.10	96.10
MW-2	106.54	96.39	96,40
MW-3	105.80	95.26	95,28
MW-4	105.65	95.35	95.27
MW-5	105.76	95.58	95.46
MW-6	105.86	95.83	95.74
MW-7	105.70	95,45	95.49

#### Notes:

TOC = top of casing (pvc)

Elevations are relative to arbitrary benchmark

\* trace floating free product (less than 0.01 feet)

#### TABLE 2

Groundwater sampling results for September 12, 1995 Big John's Riverside Store, Jericho, Vermont, UST Facility ID #963.

#### September 12, 1995

(results in ug/L)

WELL ID	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
BJ Well *	<1	<1	<1	<b>∞&lt;1</b>	<i< th=""></i<>
MW-1	3,760	14,300	2,220	11,800	5,890
MW-2	5,750	16,300	2,260	11,300	11,600
MW-4	123	3,380	738	9,390	75
MW-6	142	121	13	56	2,860

#### Notes:

< 1 = below a detection level of 1

\* - shallow well (driven point) in basement of Big John's, no longer in use

#### REGULATORY THRESHOLDS

(ug/L)

Standard	Benzene	Toluene	Ethylbenzene	Xylenes	MBTE
VT GES	5	2420	680	400	-
VT PAL	0.5	1210	340	200	-
VHA	1	-	-	-	40
MCL	5	1000	700	10000	_

#### Notes:

VT GES = Vermont Groundwater Enforcement Standard
VT PAL = Vermont Preventative Action Limit
VHA = Vermont Health Advisory
MCL = Maximum Contaminant Level

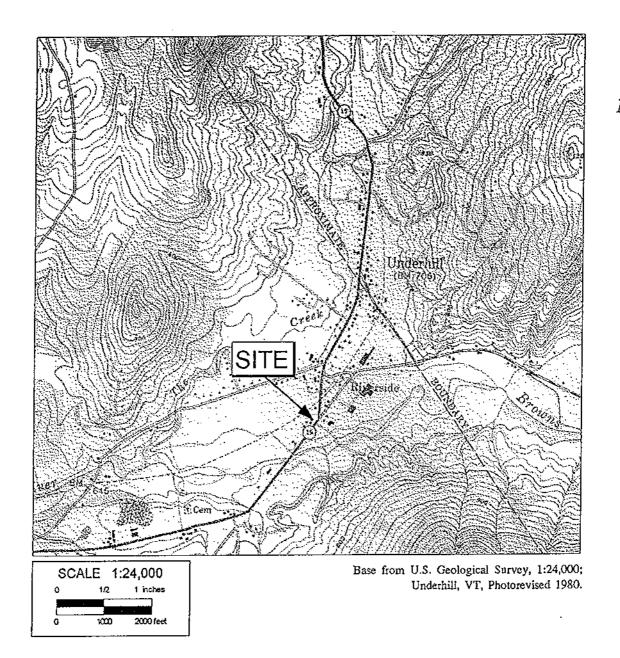


FIGURE 1
USGS topographic map showing location of Big John's Riverside Store,
Jericho, Vermont, UST Facility ID #963.

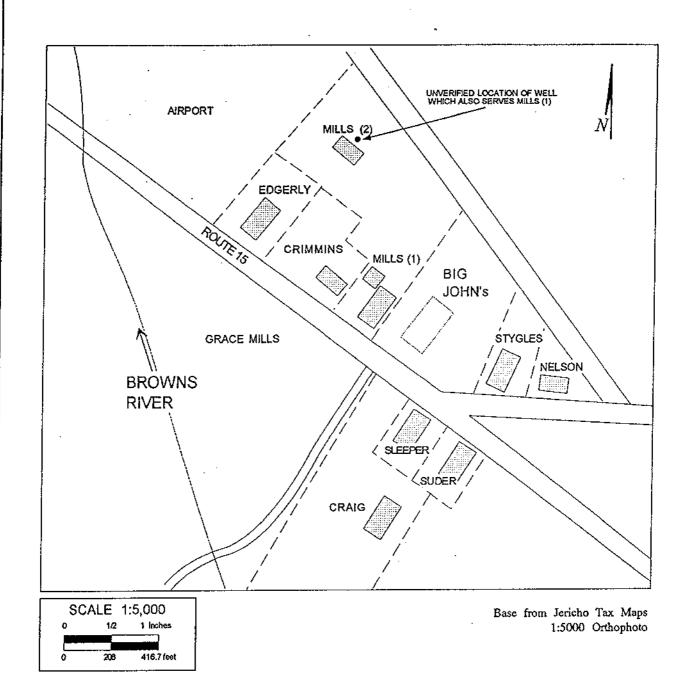


FIGURE 2
Site vicinity map, Big John's Riverside Store,
Jericho, Vermont, UST Facility ID #963.

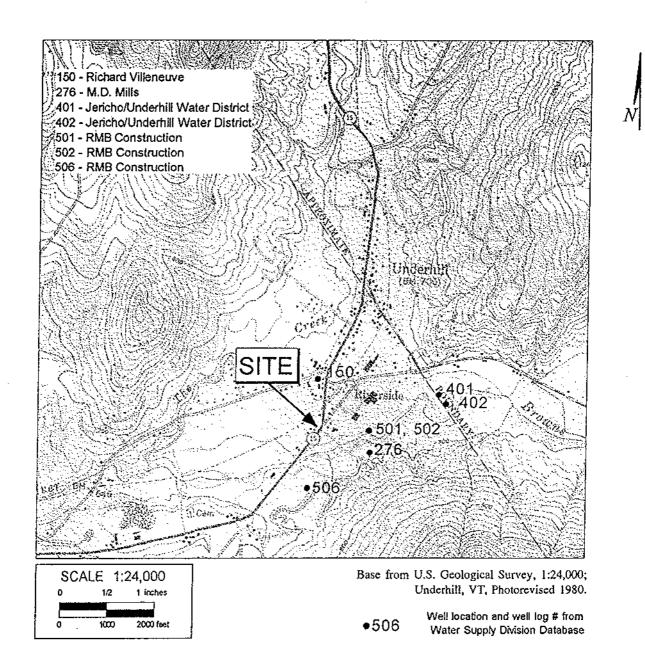
Site sketch showing former locations of closed USTs,
Big John's Riverside Store, Jericho, Vermont, UST Facility ID 963.

Site sketch showing location of soil stockpile, recharge pit, and excavation for new USTs,
Big John's Riverside Store, Jericho, Vermont, UST Facility ID 963.

UST Facility ID #963.

FIGURE 6
Isoconcentration contour map for benzene, September 13, 1995,
Big John's Riverside Store, Jericho, Vermont,
UST Facility ID #963.

Consulting Hydrogeologists



#### FIGURE 7

USGS topographic map showing water wells in the vicinity of Big John's Riverside Store,
Jericho, Vermont, UST Facility ID #963.

#### LABORATORY REPORT

CLIENT:

SB Collins, Inc.

ADDRESS:

54 Lower Welden Street, PO Box 671

St. Albans, VT 05478

SITE:

Big John's Mobil Underhill, VT

ATTENTION: Carl Ruprecht

MATRIX:

Ground Water

LABORATORY NO:

PROJECT NO:

9509-00172 90048

DATE OF SAMPLE:

09/12/95

DATE OF RECEIPT:

09/13/95

DATE OF ANALYSIS: DATE OF REPORT:

09/14-15/95

09/18/95

#### Results

(Results expressed in micrograms per liter (ug/L))

-	PARAMETER	1 BJ WELL	2 MW-6	3 MW-4	4 MW-2	5 MW-1
-	Methyl Tertiary Butyl Ether	BPQL	2860	75	11600	5890
	Benzene	BPQL	142	123	5750	3760
	Toluene	BPQL	121	3380	16300	14300
_	Ethylbenzene	BPQL	13	738	2260	2220
	Total Xylenes	BPQL	56	9390	11300	11800
	Chlorobenzene	BPQL	BPQL	< 200	< 500	< 500
-	1,2-Dichlorobenzene	BPQL	BPQL	< 200	< 500	< 500
	1,3-Dichlorobenzene	BPQL	BPQL	< 200	< 500	< 500
	1,4-Dichlorobenzene	BPQL	BPQL	< 200	< 500	< 500
<b>¬</b>	Surrogate % Recovery	98%	99%	102%	102%	98%

c: Hoffer and Associates.

EPA Method 8020

BPQL = Below Practical Quantitation Limit, 1 ppb

Respectfully submitted,

SCITEST, INC.

Roderick J. Lamothe

Zim morris

Laboratory Director

JPH-Sout

October 1, 1995

Carl Ruprecht, UST Manager S.B. Collins, Inc. 54 Lower Welden Street St. Albans, VT 05478

Re: Scope of Work/Cost Estimate for Site Investigation;
Big John's Riverside Store, Jericho, Vermont, UST Facility ID #963

#### Dear Carl:

This scope of work/cost estimate has been prepared for a site investigation at Big John's Riverside Store in Jericho, Vermont. Our preliminary site assessment report (letter to you dated September 19, 1995) summarized our observations during the removal of five underground storage tanks (USTs) and new UST installation activities at the site. The preliminary site assessment included many efforts typically considered site "investigation" activities such as groundwater monitoring, and the identification of potential receptors (private water supplies).

During the site assessment, elevated photoionization detector (PID) readings indicative of petroleum contamination were observed in soil overlying and surrounding the former USTs. Tank bedding material and native soils consisted of coarse sand and gravel, with no discrete "hot" zones. Floating free product was detected (<0.01 feet) in two of the existing site monitoring wells. Groundwater sampling results indicated high concentrations of dissolved BTEX and MTBE in four of the wells sampled. Site groundwater levels were measured and suggest a somewhat complicated flow pattern. The measured elevations show a groundwater trough through the middle of the site. The highest water levels were measured in MW-1 and MW-2, which are located near the front pump dispensers (see Figure 1).

Additional site investigation efforts will be undertaken to further characterize the site hydrogeology, groundwater flow direction, and the extent of groundwater contamination. Field activities will include the installation of additional monitoring wells and groundwater monitoring. We will also further evaluate the impact of site contamination on potential receptors. At this point in time, we do not feel that site contamination poses an imminent threat to water supplies, surface water, or indoor air quality. However, neither the magnitude of contamination nor groundwater flow patterns have been fully characterized.

#### SCOPE OF WORK

#### Monitoring Well Installation

Figure 1 is a site map showing the locations of pre-existing monitoring wells, groundwater elevations and flow directions, and benzene isoconcentration contours for groundwater. A number of the pre-existing monitoring wells were destroyed during the UST replacement activities. We propose to install up to six monitoring wells. Tentative locations are shown on Figure 2. We propose to first install three wells, obtain groundwater elevations, and then determine where additional wells are needed. One of the wells will be installed in the vicinity of the recharge pit where water from the new UST excavation was pumped into to allow installation of the new USTs.

We propose to contract Adams Engineering to install the monitoring wells using their "mini-rig" procedures. Boreholes will be advanced by driving a 2 5/8-inch sample tube. By using this method, continuous soil samples will be available for characterization. The boreholes will be advanced to at least five feet below the top of the water table, which is about 10 feet below grade at the site. The wells will be constructed with 1.5-inch diameter PVC. A ten-foot section of factory slotted well screen (0.010-inch) will be used for each well. The screened sections will be positioned to intercept the water table to allow for seasonal water table fluctuation, and to monitor for floating free product. If the boreholes created by driving the sample tube do not remain open, the wells will be vibrated to depth and completed without a sandpack. If the boreholes remain open, a sandpack will be placed around the outside of the screen. In either case, a bentonite seal will be used near the surface of the borehole to minimize surface infiltration around the outside of the well. The wells will be developed by either pumping with a peristaltic pump, or by bailing and surging.

Soil from the sample tubes will be characterized for color, moisture, texture (SCS), and other properties. Representative samples will be screened with a PID to evaluate relative contamination.

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A cost estimate from Adams Engineering is enclosed.

#### Groundwater Sampling and Analysis

Groundwater samples will be obtained from each of the new monitoring wells within one week of installation. Samples will also be collected from the pre-existing monitoring wells, and from the well point in the basement of Big John's. Prior to sample collection, PID well headspace and water level measurements will be recorded for each well. An interface probe will be utilized to monitor for floating free product in wells where free product is suspected. Prior to sample collection, the wells will be purged of three well volumes (or until dry). Purging and sampling activities will be conducted using dedicated polyethylene bailers in the existing 2-inch wells, and with dedicated 1.33-inch PVC bailers

Carl Ruprecht October I, 1995 Page 3

in the new 1.5-inch wells. The well point in Big John's basement will be sampled with a Waterra<sup>M</sup> foot valve and sampling tube.

After purging the wells, samples will be transferred directly into two 40 mL vials. The vials will be provided by the laboratory, and will contain hydrochloric acid for sample preservation.

Quality assurance/quality control samples will include a trip blank, a field blank, and a blind duplicate. The trip blank will be provided by the laboratory. It will be transported with all sample vials to the site, handled in a similar fashion as collected samples, and then accompany the samples back to the laboratory. The field blank will be filled on site by pouring deionized water into sample vials at the conclusion of sampling activities. A blind duplicate will be collected from one of the wells along with the sample from that well, and will be labeled with a fictitious sample name and time. A laboratory chain-of-custody form and field sampling data sheet will be utilized to document the sampling event. The chain-of-custody form will accompany the samples to the laboratory.

All samples will be analyzed for BTEX and MTBE using EPA Method 8020. We propose to utilize Scitest Laboratory Services of Randolph, Vermont, and have used their unit cost of \$55/sample for this proposal. For this proposal, we have assumed that a total of 14 water samples will be submitted for analysis.

#### Groundwater Elevations

Site groundwater levels will be measured during the sampling event and on at least one other occasion. Water levels will be converted to elevations in order to construct water-table maps.

#### **Stockpiled Soil Evaluation**

The stockpiled soil on Big John's property will be evaluated to determine its volume and degree of contamination. Soil samples will be obtained at various locations throughout the pile from the surface and at a depth of approximately two feet. Samples will be collected with a hand auger and placed into plastic zip-lock bags. The headspace will be measured with a PID. Sample location and headspace readings will be recorded.

#### Indoor Air Quality Screening

To ascertain if site contamination poses a risk to indoor air quality, a PID survey will be performed in the basement of Big John's Store. In addition, PID screening will be performed at nearby residences if deemed necessary.

#### Site Survey/Basemap Preparation

Carl Ruprecht October 1, 1995 Page 4

A site survey will be completed to establish the locations and elevations of all new monitoring wells as well as various physical structures across the site. This information will be obtained in order to develop an accurate site basemap and to calculate groundwater elevations. If possible, elevations will be relative to a USGS benchmark in feet above mean sea level. If no USGS benchmark is readily available, an arbitrary on-site benchmark will be assigned. We have included costs incurred from Brooks Land Surveying, of St. Albans, Vermont, for surveying work performed at similar sites in our cost estimate.

#### **Report Preparation**

Following the field effort, a summary report will be prepared which details the field procedures and sampling results at the site. The report will include descriptions of investigative procedures covering monitoring well installations, groundwater sampling, and soil screening. The report will include well logs, tabulations of water levels and analytical data, water-table maps, isoconcentration contour maps, and cross sections. The report will present an interpretation of the site hydrogeology and extent of contamination, and a qualitative assessment of risks posed by site contamination to potential receptors.

#### **Project Costs**

The estimated project costs are as follows:

Hoffer & Associates	\$2595.60
Well Driller	\$1500,00
Laboratory	\$770.00
Surveyor	\$300.00
-	

TOTAL \$5165,60

The anticipated time frame for completion of the field work phase of this project through submittal of the site investigation report is approximately four weeks. If you have any questions or comments concerning this scope of work or cost estimate, please give us a call.

Sincerely, HOFFER & ASSOCIATES

Jefferson P. Hoffer Principal Hydrogeologist

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#### **HOFFER & ASSOCIATES COST ESTIMATE**

Prepared For: S.B. Collins, Inc. Project Type: Site Investigation

Site Location: Big John's Riverside Store, Jericho, VT

#### LABOR

LABOR				
TASK	Staff	Hours	Rate	Amount
Backround Information Review	SCF	4.00	\$35.00	\$140.00
Health & Safety Plan Update	SCF	2.00	\$35.00	\$70.00
Monitoring Well Drilling	SCF	16.00	\$35.00	\$560.00
Water Levels/Well Development	SCF	6.00	\$35.00	\$210.00
Stockpiled Soil Screening	SCF	2.00	\$35.00	\$70.00
Groundwater Sampling	SCF	8.00	\$35.00	\$280,00
Data Entry	HP	4.00	\$15.00	\$60.00
Report Preparation	SCF	24.00	\$35.00	\$840.00
Report Preparation	НР	2.00	\$15.00	\$30.00
Figures/Report Review	JPH	4.00	\$40.00	\$160,00

SUB-TOTAL H&A Labor \$2,210.00

#### **EXPENSES**

ITEM	Quantity	Rate	Mark Up	Amount
Mileage - Monitoring well drilling	150	\$0.28	\$0.00	\$42.00
Mileage - Groundwater soil/sampling/water levels	150	\$0.28	\$0.00	\$42.00
PID Rental - Monitoring well drilling	2	\$75.00	\$0.00	\$150.00
Interface Probe Rental - GW sampling	1	\$25.00	\$0.00	\$25.00
Dedicated Bailers - 1.33" PVC	6	\$21.10	\$0.00	\$126.60

SUB-TOTAL H&A Expenses \$385.60

#### SUB-CONTRACTORS

BOD-COMMINICIONS				
ITEM	Quantity	Rate	Mark Up	Amount
ADAMS ENGINEERING				
Monitoring Well Drilling	6 wells	l.s.	\$0.00	\$1,500.00
SCITEST LABORATORY SERVICES				
8020 water analyses for BTEX/MTBE	14	\$55.00	\$0.00	\$770.00
BROOKS LAND SURVEYING				
Site basemap/elevations	1	\$300.00	\$0.00	\$300,00

SUB-TOTAL Sub-Contractor \$2,570.00

TOTAL ESTIMATED PROJECT COST \$5,165.60



#### State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
RELAY SERVICE FOR THE HEARING IMPAIRED
1-800-253-0191 TDD>Voice
1-800-253-0195 Voice>TDD

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
Hazardous Materials Management Division
103 South Main Street/West Office
Waterbury, Vermont 05671-0404
(802) 241-3888
FAX (802) 241-3296

October 12, 1995

Carl Ruprecht
S.B. Collins, Inc.
P.O. Box 671
St. Albans, VT 05478

RE: Work Plan and Cost Estimate for Big John's Riverside Store, Jericho, VT

(Site #95-1889)

#### Dear Mr. Ruprecht:

The Sites Management Section (SMS) has reviewed the Hoffer & Associates workplan dated October 1, 1995 for the above referenced site. This workplan includes installing up to six additional monitoring wells, collecting groundwater samples from all on-site monitoring wells for analysis of BTEX and MTBE compounds, screening the stockpiled soils as well as the basement of the store and nearby residences as necessary, conducting a site survey, and submitting a summary report which includes analytical results, detailed well logs, a site map, a groundwater contour map, an area map, isoconcentration contour maps, as well as any conclusions and recommendations. The SMS approves the workplan as submitted for costs not to exceed \$5,165.60, and requests that onsite work be initiated as soon as possible.

The SMS looks forward to the completion of this work. If you have any questions or comments, \_please feel free to call me at 802-241-3243.

Sincerely,

Matthew Moran, Site Project Manager

Sites Management Section

-cc: Jefferson Hoffer, Hoffer & Associates

mattm/wp/951889wp

October 30, 1995

Mr. Dwyer Mills RR 2, Box 2945 Cambridge, VT 05444

Dear Mr. Mills:

On October 19, you gave me permission to collect a water sample from the well point in the basement of your mothers' house located on Route 15 next to Big John's Riverside Store in Jericho. I collected this sample due to the location of the well point in relation to the groundwater contamination we were investigating at Big John's.

The laboratory results of this sample indicate the presence of 3 micrograms per liter (ug/L) of Methyl Tertiary Butyl Ether (MTBE), which is a gasoline additive. No other compounds were detected.

This amount of MTBE is relatively minor (1 ug/L is equivalent to 1 part per billion), being far below the Vermont Health Advisory level of 40 ug/L, and is not cause for concern. However, since we understand that water for this house can easily be provided from the drilled well associated with the other residence on this property, we suggest that this be done as a precautionary measure.

I appreciate your willingness to provide me access to this well point. There is a possibility that it would be beneficial to resample this well in the future. If so, I will contact you to schedule a convenient time.

If you should have any questions regarding these results, I can be reached at 244-5573. Thanks again for your cooperation.

Sincerely, HOFFER & ASSOCIATES

Stratton French Senior Hydrologist

Sent

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NEWS & CITIZEN, INC.

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Depth From			hale, limestor medium, coa	PCA PAIAT (	าก เพลา⊖กลา	STURCLUM	: 110030.	vau
Ground Surface	ceme	nted, hard	). For example gray granite.	ole: Surfac	e to 27 ft.	fine, pack	ea, yello	w sa
	7	, (0 134 16,	gray granice		182-	7118	1/1/	,
Surface to Joft.	Travel		7				.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	F
30 to 148 ft. (1)	ay J	Tray S	and			*****		
148 to 151 ft.	Def			.,,		4+++++++++++1		
15; to 182 ft. B	nown		If yield w	YIELD as tested	TEST DAT at different List Bel	t depths d	.M. uring dr	llin
G.P.M. @	ft.	<u> </u>		G.P.M. @	 D	ft.		
G.P.M. @	ft.			G.P.M.	j)	ft.		
WATER ANALYSIS: Has wa Include A	ter been analyz	ed? [] Yes	No If Ye	s, Where			********	
DRILLED BY:	A. 1911	mark	, 	<i>.</i> ]			Sign	atur
	11. 12.	Mar	al L	rg.				npan
DOING BUSINESS AS:	agagaanaan gagaarii J	1,100	ית ויפוון	RILLERS I	ICENSE N	o. 8		Thur.
DATE OF REPORT:		(5%), 2.9	יייייי אל בייזיר עו					
5M 6-76	•		•					

#### State of Vermont

WATER RESOURCE USE ONLY

<u>5748</u>

This report must be completed and submitted to the Department of Water Resources and Environmental Engineering, State Office Building, Montpelier, Vermont 05602, no later than 80 days after complettan of the well.

# DEPARTMENT OF WATER RESOURCES AND ENVIRONMENTAL ENGINEERING

WELL COMPLETION REPORT

JAN 1 4 1996

w.r. <u>2</u>	76	2 .	_ U.S.G	.s
Field Locat	ion (	) N	iap area	223
Latitude		•		_"Elev
		٠.	4	" Topo

Longitude \_\_\_\_\_ Topo.\_\_ Scale: 62,500 🗆, 25,000 🗆, 24,000

·	Ihan 60 days ofter com	letten of	Ina well. M1	Location map attached	to WCR 217	Data In Town File	as U
l.	WELL OWNER.	<u></u>	no Do M	Bov 506,	Under Parmonent	hill Cende	r, Ut -059
	WELL PURCHA		Name	·	Permane	nt Malling Address	*
2.	LOCATION OF W	ELL:	TOWN Jeri	cho subdivis	SION		LOT NO
3.	DATE WELL WA	s co	MPLETED	114/85			·-
4.	PROPOSED USE	OFW	/ELL. & Domestic, &	Voiner Camp	g rounds		<b>-</b>
5.				Supply, Replace Existing Supply, C	~		lon,
			D Provid	1+ Additional Supply, 🗖 Other			<u>.</u>
6. ·	DRILLING EQUI	PMEN		otary with A-P. Other			
7.	TYPE OF WELL	: 0 /op.	n'Hole in Bedrock, 🗀 Ope	n End Casing, 🔲 Screened or Statted;	☐ Other		· · · · · · · · · · · · · · · · · · ·
8.				feet below fand swrface			
9.	CASING FINISH:	M Above	ground,finlehed, 🔲 Above	a ground, Unfinished, 🗀 Burlad, 🗋 in Pi	It, 🛘 Removed, 🗀	Hone used, 🗀 Olher	
io.  ·	CASING DETAILS	. Total i	ingth 128 11, La	ngth below L.S. <u>126</u> It Dia	6_in. Maleria	1 <u>5 Kel</u> WI.	(8.7f1,
1.				n yred ft, Digmeter			
2.				OCK: Sorive Shoe, O Grout - type			
	,			Olher			<u> </u>
3.	SCREEN DETAIL	S' Make	and Type	,Water	la)	,Length	tt., Digmeter
٠.	Siot Size	. Dapth I	o top of screen in feet below	Land surfaceft., Gr	overpack if used: G	ravel Size or Type	
14.	YIFLD TEST: O	Bailed . C	Pumped, D Compressed	Air, for	3/2	iations per minute	
••				red by 🖫 Bucket, 🖸 Orifoce pipe, 🗖			Permanent Alriid
5.	STATIC WATER L	EVEL		below land surface, Date or Time measu	red	, Overflows of	G. P. M.
6.				You Was It Yes, Where			
7.	SPECIAL NOTES					·	•
18.	WELL LOG	•				19. SITE MAP	and the state of t
	Depth from Land Surface	Water		Formation Description	Sketch	other land marks and indicat Indicate local street name at	such as buildings, septic tanks, e not less than two distances to t nd subdivision tot number,
•	Feet Feet	Bearing				1	$\omega \nu$
	Surface 18.	ļ <u>-</u>	Grave 1 5	Sand		•	. 0
	18 77	<u>.</u>	Clay	<u> </u>		1 (	50 1
	77 91		Hardpan	•			1
	91 98		Gran s	hale			
	98 113	1	Gray Wid	y clar			FOR PGROS
				May			FOR NEOL
	- 1	17	Brown S		, <u> </u>	17 AT 15	comila
٠.	133 298	1	- Juan		<del></del> -	K	
-	<del></del>	<u> </u>	<del></del>		<u> </u>	a ma	ince (
	TESTED YIELD			WELL DRILLED BY:	/Υ	· M. ///	
		ferent des	oths during drilling, fist below.	1	11	G Mann	ch lieren
	Fact	-	Gallons Per Minute	DOING BUSINESS AS:_	/^	Company or Busines	s Name
				-	•	$\lambda \sim \lambda$	Mase _
		<b></b>  -		REPORT FILED BY:	<del></del>	Authorized Signs	glura

DATE OF REPORT: 6/28/85 WELL DRILLERS LIC. NO.

Ruck

		DEPARTMENT OF WATE		_w.r. <u></u>	U.\$.G; S
	(For Orliter's Use)	AND ENVIRONMEN NA	ENGINEERING	Field/Location () A	
	This report must be completed and submitted to the Department of Water Resources and	WELL COMPLETION	N.REPORT	(a) hude	Elev
	Environmental Engineering, no later		JAN 18 1990	/Vorigitude /Scole: 62,500 □.	25,000 D, 24,00
	(han 60 days sisse sompletion of the wall,	FEB - Location map c	Hoched to WCR	Dala In Town Files	
		who + Under hit		With t	
	WELL OWNER	ICAS & ONCEPALITY	Patrienas M	olling Address	
	OR WELL PURCHASER	Same			
	nome.	T. /a		Maling Address	_OT NO
`2.		Jericho su	BDIVISION		-01 140.
3.	DATE WELL WAS COMPLET	LED 19-38-31			
4.		Oomestic, O Other Town			•
5.	REASON FOR DRILLING WE	LL : KNow Supply, 🛘 Replace Existing S			u e
•		🗆 Provide Additional Supply, 🗅 Othe	·		
6.	DRILLING EQUIPMENT: D	oble Tool, A Relary with A-P, O Other			
7.	TYPE OF WELL: D Open Hote In t	8edrocz, 🗆 Open End Casing, 🔀 Screened as	Stotfed;   Other		<u> </u>
8.	TOTAL DEPTH OF WELL:	182 feet below la	id surface.		
9.		Finished, (XAbove ground, Unfinished, () Buried		None used, Other	·
10.	CASING DETAILS Total leagth	182 11. Longth below L.S	r, Dia, In. Majerial	5/cc/ w1_	16.711.
11.	LINER OR INNER CASING DE	TAILS: Length weed 170 11. Dlame	er	Steel Weight	1b./ff.
		G TO BEDROCK! Drive Shoe, D Gr			
12.	WEIGO OF SEAFING CASIN		el well-		
	·	<del>-</del> -		. Stockengin_ /	
13.	SCREEN DETAILS, Make and Type	Tohnson 170			My #4
				uner 3/10 47 1/10	
	• -		•		
14.		. Compressed Air, for		illons per minute	O O Aldies
	tep test only	Managrad by   8ucket.   Orifoce	pipe, D wier, D Heler		Permanent Alrline
	top tost only static water Level: 1	Measured by 0 Sucket, 0 Oritace  85 From Top of R	pipe, D Wier, D Meler ) - 70 /2 me measured	illons per minule	
S	STATIC WATER LEVEL:	Measured by   Bucket,   Oritaci  85 From Top Of  Bet Delow land sufface, Dala of H  been analyzed? Ayes   No. 11 Yes, Where	pipe, D Wier, D Meler ) - 70 /2 me measured		
S 15.	STATIC WATER LEVEL:	Measured by 0 Sucket, 0 Oritace  85 From Top of R	pipe, D Wier, D Meler ) - 70 /2 me measured	,Overflows at	
S 15. 16.	STATIC WATER LEVEL:	Measured by   Bucket,   Oritaci  85 From Top Of  Bet Delow land sufface, Dala of H  been analyzed? Ayes   No. 11 Yes, Where	pipe, D Wier, D Meler ) - 70 /2 me measured		G.P.M.
15. 16. 17.	STATIC WATER LEVEL: 1. WATER ANALYSIS: HOLE THE SPECIAL NOTES: 4 WELL LOG Depit from Land Surface   Water	Measured by   Bucket,   Oritaci  85 From Top Of  Bet Delow land sufface, Dala of H  been analyzed? Ayes   No. 11 Yes, Where	pipe, D Wier, D Meler ) - 70 /2 me measured		G.P.M.  th as buildings, septic tanks, an oil lessihan two distances la the
15. 16. 17.	STATIC WATER LEVEL:  WATER ANALYSIS: HOD THE POLICY SPECIAL NOTES:  WELL LOG  Depin from Lond Surface   Water    Fast   Fast   Bearing	Mediured by   Bucket,   Oritace  Some Top of Restriction for the State of File of the State of File of	me measured	19. SITE MAP Shaw permanent structure suc	G.P.M.  th as buildings, septic tanks, an oil lessihan two distances la the
15. 16. 17.	STATIC WATER LEVEL: 1. WATER ANALYSIS: HOD IND TO SPECIAL NOTES: 4 WELL LOG Depin from Lond Surface   Water	Mediured by   Bucket,   Oritace  Some Top of Restriction for the State of File of the State of File of	me measured	19. SITE MAP Shaw permanent structure suc	G.P.M.  th as buildings, septic tanks, an oil lessihan two distances la the
15. 16. 17.	STATIC WATER LEVEL:  WATER ANALYSIS: HOLE INC. WOLL LOG  Depit from Lond Surface Water  Fast Fast Bearing  Ground	Mediured by   Bucket,   Oritace  Some Top of Restriction for the State of File of the State of File of	pipe,   Wier,   Meler	19. SITE MAP Shaw permanent structure such other land marks and indicate in indicate in make and indicate in the such indicate in the s	G.P.M.  th as buildings, septic tanks, an oil lessihan two distances la the
15. 16. 17.	STATIC WATER LEVEL:  WATER ANALYSIS: HOLE INC. WOLL LOG  Depit from Lond Surface Water  Fast Fast Bearing  Ground	Mediured by   Bucket,   Oritace  Some Top of Restriction for the State of File of the State of File of	me measured	19. SITE MAP Shaw permanent structure such other land marks and indicate in indicate in make and indicate in the such indicate in the s	G.P.M.  th as buildings, septic tanks, an oil lessihan two distances la the
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15. 16. 17.	STATIC WATER LEVEL:  WATER ANALYSIS: HOLE INC. WOLL LOG  Depit from Lond Surface Water  Fast Fast Bearing  Ground	Mediured by   Bucket,   Oritace  Some Top of Restriction for the State of File of the State of File of	pipe,   Wier,   Meler	19. SITE MAP Shaw permanent structure such other land marks and indicate in indicate in make and indicate in the such indicate in the s	G.P.M.  th as buildings, septic tanks, an oil lessihan two distances la the
15. 16. 17.	STATIC WATER LEVEL:  WATER ANALYSIS: HOLE INC. WOLL LOG  Depit from Lond Surface Water  Fast Fast Bearing  Ground	Mediured by   Bucket,   Oritace  Some Top of Restriction for the State of File of the State of File of	pipe,   Wier,   Meler	19. SITE MAP Shaw permanent structure such other land marks and indicate in indicate in make and indicate in the such indicate in the s	G.P.M.  th as buildings, septic tanks, an oil lessihan two distances la the
15. 16. 17.	STATIC WATER LEVEL:  WATER ANALYSIS: HOLD INC WOLL LOG  Depit from Lond Surface Water  Fast Fast Bearing  Ground	Mediured by   Bucket,   Oritace  Some Top of Restriction for the State of File of the State of File of	pipe,   Wier,   Meler	19. SITE MAP Shaw permanent structure such other land marks and indicate in indicate in make and indicate in the such indicate in the s	G.P.M.  th as buildings, septic tanks, an oil lessihan two distances la the
15. 16. 17.	STATIC WATER LEVEL:  WATER ANALYSIS: HOLD INC WOLL LOG  Depit from Lond Surface Water  Fast Fast Bearing  Ground	Mediured by   Bucket,   Oritace  Some Top of Restriction for the State of File of the State of File of	pipe,   Wier,   Meler	19. SITE MAP Shaw permanent structure such other land marks and indicate in indicate in make and indicate in the such indicate in the s	G.P.M.  th as buildings, septic tanks, an oil lessihan two distances la the
15. 16. 17.	STATIC WATER LEVEL:  WATER ANALYSIS: HOLD INC WOLL LOG  Depit from Lond Surface Water  Fast Fast Bearing  Ground	Mediured by   Bucket,   Oritace  Some Top of Restriction for the State of File of the State of File of	pipe,   Wier,   Meler	19. SITE MAP Shaw permanent structure such other land marks and indicate in indicate in make and indicate in the such indicate in the s	G.P.M.  th as buildings, septic tanks, an oil lessihan two distances la the
5 15. 16. 17. 18.	STATIC WATER LEVEL:  WATER ANALYSIS: HOLE INCOMES:  WELL LOG  Depin from Lond Surface Water  Feet Feet Bearing  Ground Surface  L	Measured by Bucket, Oritace  85 From Top of From 100 o	Skelch	19. SITE MAP Shaw permanent structure such other land marks and indicate in indicate in make and indicate in the such indicate in the s	G.P.M.  th as buildings, septic tanks, an
15. 16. 17.	STATIC WATER LEVEL:	Heatwired by Bucket, Oritace  85 From Top of Rest beton lond surface, Dall of The been analyzed? A Yes No. 11 Yes, Where  Sich & Con Con  Formalian Description  C.S.S.  Left Con London Control  WELL DRILLED	Skelch	19. SITE MAP Shaw permanent structure such other land marks and indicate in indicate in make and indicate in the such indicate in the s	G.P.M.  th as buildings, septic tanks, an
5 15. 16. 17. 18.	STATIC WATER LEVEL:  WATER ANALYSIS: Has the woler to SPECIAL NOTES:  WELL LOG  Depit from Lond Surface Water Feet Bearing  Ground Surface Water Bearing  Ground Surface Surface Bearing  Ground Surface Surface Bearing  Ground Surface Bearing  Grou	Measured by Bucket, Oritace  85 From Top of  Period Innovirus, Dall of the State of	Stelch  BY: Dare	19. SITE MAP Show permanent structure such other lond marks and indicate in Indicate local street name and ed C	G.P.M.  th as buildings, septic tanks, an
5 15. 16. 17. 18.	STATIC WATER LEVEL:  WATER ANALYSIS: Has the water SPECIAL NOTES:  WELL LOG  Depit from Land Surface Water Fast Fast Bearing Ground Surface Su	Heatwired by Bucket, Oritace  85 From Top of From John of Floring State Deliver Lond Bufface, Dall of Floring Description  Formalian Description  Formalian Description  WELL DRILLED additing, Held below.	Stelch  BY: Dare	19. SITE MAP Shaw permanent structure such other land marks and indicate in indicate in make and indicate in the such indicate in the s	G.P.M.  th as buildings, septic tanks, an
5 15. 16. 17. 18.	STATIC WATER LEVEL:  WATER ANALYSIS: Has the water SPECIAL NOTES:  WELL LOG  Depit from Land Surface Water Fast Fast Bearing Ground Surface Su	Measured by Bucket, Oritace  85 From Top of  Period Innovirus, Dall of the State of	Stelch  Stelch  Stelch  SAS: Hydro	19. SITE MAP Show permanent structure such other lond marks and indicate in Indicate local street name and ed C	G.P.M.  th as buildings, septic tanks, an
5 15. 16. 17. 18.	STATIC WATER LEVEL:  WATER ANALYSIS: Has the water SPECIAL NOTES:  WELL LOG  Depit from Land Surface Water Fast Fast Bearing Ground Surface Su	Heatwired by Bucket, Oritace  85 From Top Of  Feet beto lond surface, Dall of the been analyzed? A Yes O No. 11 Yes, Where  Shows Formalian Description  Formalian Description  WELL DRILLED  Additing, list below.  The Per Minute DOING BUSINES  REPORT FILED	Stelch  Stelch  Stelch  SAS: Hydro	19. SITE MAP Show permanent structure such as the lond marks and indicate in Indicate local street name and the company or Bysiness N  Company or Bysiness N  Authorited Signature	G.P.M.  th as buildings, septic tanks, an

#### (For Dellier's Use)

This report must be completed and submitted to the Department of Water Recovices and Environmental Engineering,

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#### DEPARTMENT OF WATER RESOURCES AND ENVIRONMENTAL ENGINEERING

#### WELL COMPLETION REPORT

W.R	<u> </u>	<u> </u>	_ U.S.(	3.S.	
Field Loc	allo	зΩм	ap are	a 5	21
Latitude.					
Longitud	a	•		· " T	'nnr
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1 1 1										
WELL	OWNER		Secialo	f Una	Gehill	wo	Ler		isto	it
(	)R		nome			Par	menent	Molling Addre	0	
WELL	PURCH	ASER	Nome S'c	m P	<del></del>	<del></del>	Permane	nt Maling Addi	1116	
LOCAT	ION OF I	WELL:	TOWN	richo	\$UBDI	VISION _		· ·	·	LOT NO.
DATE V	YELL'W	AS CO	MPLETED	7-26-8	7					
PROPO	SED USE	E OF V	VELL: 🗆 Domestic	., 🗆 omir	03	icht		<u>#(</u>	<u>) හ-ි</u>	<u>3                                    </u>
REASO	N FOR E	RILLI	NG WELL: O N	ew Supply, [] Rep	iace Existing Supply	r. 🖸 Osepen	Estisting	w•#, 🖎 🕉 🕶	or Explora	tion,
· _			O Pr	ravide Additional Su	pply, 🛭 Other				·	_
DRILLI	NG EQU	IPMEN	IT: 🗆 Cable Tool, 🛭	Rolary with A-P	, D Other		<del></del> -			
TYPE C	F WELL	.: 🗆 👵	n Hole in Bedrock, 🔘	Open End Casing, (	Screened or Slott	lad; 🗋 Oshar	<u></u>			<u></u>
TOTAL	DEPTH (	OF WE	LL://	17.1	, feet below land sw	face,				
			ground,Finlehed, 🛭 A							
			engih <u> 7/7</u> fj.							
			NG DETAILS:							
METHO	OF SEA	LING	CASING TO BEI							,
			~		Screen					
			and Type Coc		-					
Stot Size	060	. , Depin t	o top of screen in feet b	elaw land surface _		Gravel pack II	weed: Gr	avel Size or Y	7.04	
V10-1										
TIELD 1	EST: O	8ailed , C	Pumped, 🖸 Compress	sed Air, for	Hours al		6	illeas per mini	ile .	
TIELD 1	EST: O	8cil•d , C		•	Hours al			ollogs per mini	ile .	O Perm
			Ma	awred by D Buck	et, 🗆 Oriface plpe,	O Wier, O	Meter			
STATIC V	WATER L	.EVEL		ear below land surfa	et, Oriface plac.	O Wier, O I	Meter	, Overflow	os o1	
STATIC V	WATER L ANALYS	.EVEL	Me the water been analyzed 3	ear below land surfa	et, Oriface plac.	O Wier, O I	Meter	, Overflow	os o1	
STATIC V WATER A SPECIAL	WATER L ANALYS NOTES	.EVEL	Me the water been analyzed 3	ear below land surfa	et, Oriface plac.	O Wier, O I	Meter	,o	E MAP	G, P. M
STATIC V WATER . SPECIAL WELL L	WATER L ANALYS NOTES OG	EVEL	Me the water been analyzed 3	ear below land surfa	et, Oriface plae, ce, Oote or Time me Yes, Where	O Wier, O I	Meter	.Overflow	E MAP	uch as buildings, so
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STATIC V WATER SPECIAL WELL L	WATER L ANALYS NOTES OG	EVEL	Me water been analyzed 3	owered by O Buck. eer below land eurfa ? O Yee O No, If  Formalian Descrip	et, Oriface plae, ce, Oote or Time me Yes, Where	wier, O	Mater States	. Overflow 19. SITE Show perman other load mai indicate local	E MAP	uch as buildings, so
STATIC V WATER SPECIAL WELL L Outline Feet Ground	WATER L ANALYS NOTES OG	EVEL	Me water been analyzed 3	owered by O Buck.	et, Oriface plae, ce, Oote or Time me Yes, Where	wier, O	Mater	. Overflow 19. SITE Show perman other load mai indicate local	E MAP	uch as buildings, so
STATIC V WATER SPECIAL WELL L Outst from Feet Ground	WATER L ANALYS NOTES OG	EVEL	Me water been analyzed 3	owered by O Buck. eer below land eurfa ? O Yee O No, If  Formalian Descrip	et, Oriface plae, ce, Oote or Time me Yes, Where	wier, O	Mater States	. Overflow 19. SITE Show perman other load mai indicate local	E MAP	uch as buildings, so
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STATIC V WATER . SPECIAL WELL L Outline feat Ground	WATER L ANALYS NOTES OG	EVEL	Me water been analyzed 3	owered by O Buck. eer below land eurfa ? O Yee O No, If  Formalian Descrip	et, Oriface plae, ce, Oote or Time me Yes, Where	wier, O	Mater States	. Overflow 19. SITE Show perman other load mai indicate local	E MAP	uch as buildings, so
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STATIC V WATER SPECIAL WELL L Outline Feet Ground	WATER L ANALYS NOTES OG	EVEL	Me water been analyzed 3	owered by O Buck. eer below land eurfa ? O Yee O No, If  Formalian Descrip	et, Oriface plae, ce, Oote or Time me Yes, Where	wier, O	Mater States	. Overflow 19. SITE Show perman other load mai indicate local	E MAP	uch as buildings, so
STATIC V WATER SPECIAL WELL L Outline Feet Ground	WATER L ANALYS NOTES OG	EVEL	Me water been analyzed 3	owered by O Buck. eer below land eurfa ? O Yee O No, If  Formalian Descrip	et, Oriface plae, ce, Oote or Time me Yes, Where	wier, ()	Mater States	. Overflow 19. SITE Show perman other load mai indicate local	E MAP	uch as buildings, so
STATIC V WATER SPECIAL WELL L Outh from Feet Ground Surface	WATER L ANALYS NOTES OG Land Surface Feet	EVEL	Me water been analyzed 3	Sourced by Buck.  Buck.	et, Oriface plae, ce, Oate or Time me Yes, Where	asured	Shaten Hec	19. SITE Show perman other tood ma indicate tocal	E MAP	uch as buildings, so
STATIC \ WATER SPECIAL WELL L Outst from Feet Ground Surface	WATER L ANALYS NOTES OG Land Surface Feet	Water Bearing	Well  Les	Secret by Buck.	et, Oriface plae, ce, Oote or Time me Yes, Where	asured	Mater States	19. SITE Show perman other tood ma indicate tocal	E MAP	uch as buildings, so
STATIC V WATER SPECIAL WELL L Outh from Fast Ground Swriace	WATER L ANALYS NOTES OG Land Surface Feet	Water Bearing	Me water been analyzed 3	WELL Cox.	ORILLED BY:	asured	Shaten Hec	19. SITE Show perman other tood ma indicate tocal	E MAP	uch as buildings, so
STATIC \ WATER SPECIAL WELL L Outh from Feet Ground Sveface	WATER L ANALYS NOTES OG Land Surface Feet  YIELD Lested or diff	Water Bearing	he water been analyzed 3	WELL Cox.	et, Oriface plae, ce, Oate or Time me Yes, Where	asured	Shaten Hec	19. SITE Show perman other tood ma indicate tocal	E MAP	uch as buildings, so
STATIC V WATER SPECIAL WELL L Outh from Fast Ground Svrioce  TESTED	WATER L ANALYS NOTES OG Land Surface Feet  YIELD Lested or diff	Water Bearing	he water been analyzed 3	WELL DOWN	ORILLED BY:	asured	Shaten Hec	19. SITE Show perman other tood ma indicate tocal	E MAP	uch as buildings, so

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NEW YORK CO., INC.

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TEST WELL RECORD

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NOTE (1) SKETCH MEASUREMENTS FROM GROUND LEVEL.

2) ORS. WELL SCREEN IS OPPOSITE WELL SCREEN.

Laugh Leans

## WELL NO. / TAG NO. 53-295-94 (For Deliter's Use)

### State of Vermont Dept. of Environmental Conservation 103 South Main Street (10 N) Waterbury, Vt. 05676

DEPAR	TMENT	USE ONLY
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E.C. <u>501</u> U.S.G.S. Fleid Location □ Map area <u>22</u>

	This report must be completed and submitted to the Deportment of Environmental Conservation (O3 South Main Street (ION), Waterbury, VI O5676 no later than 60 days ofter completion of the well	Waterbury, Vt. 05676 LL COMPLETION REPORT APR 2 0 1994 Location map attached to WCR	Latitude Elev Longitude Topo Scale: 62,500 🗆 ,25,000 🗆 ,24,000 🗆 Data in Town Files 🗅
1.	WELL OWNER RMB Const	ruction In 9 Been	cherood Jane, Jericho, UT 05416
	WELL PURCHASER		mdnent Mailing Address LOT NO.
2.	DATE WELL WAS COMPLETED		
3.		, O Other	· .
4.		Supply, C Replace Existing Supply, C Deepen Exis	
5.		ovide Additional Supply, 🖸 Other	
	and the second s	Rotory with A-P. Other	
: 6.		Open End Casing, Screened or Statted; Olher	
7. 8.	TOTAL DEPTH OF WELL: 340		
9.		bove graund, Unflaished, 🔲 Burled, 🔲 In Pil, 🔲 Remove	id.   None yeed.   Other
9. 10.	CASING DETAILS TOUR 27/7"	Length below L. S. 269 7 11 Dio. 64 in. M.	otesial Starle W1 17 16.111
10.		ength used ft. Dlameter in. Ma	
12.	_	DROCK: Borive Shoe, G Grows - type	
, <b>.</b> .	merrios or senemo sociolo re se	Other	
13.	SCREEN DETAILS' HOLDER TERE		, Langth II , Diometer
13.	Siol Size	selow land surfaceft , Gravel pack if us	sed. Gravel Size or Type
14,	YIELD TEST: D Boiled . D Pumped . D Compres	edwired by Bucker, O Oriface pipe, O Wier, O Me	Gallons per minute
15.	STATIC WATER LEVEL!	feet below land surface, Date or Time measured	, Overflows of G P M
l6.	WATER ANALYSIS! Has the water been analyzed	? Tas C No. If Yee, Where	· · · · · · · · · · · · · · · · · · ·
17.	SPECIAL NOTES:		
18.	WELL LOG		19. SITE MAP  Show permodent structure such as buildings, septic tanks, and/or N
	Depth from Land Surface Water Feet Feet Bearing	Formation Description 3kg	atch lindicals local street name and subdivision let number
	Surface 21 Gravel		
	21 22 Nock		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
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	80 92 gravel		
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20.	TESTED YIELD	WELL DRILLED BY:	andré Baraw
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	340' 10		Company or Business Hams
		REPORT FILED BY: Bond	ta J. Smith
			evanteerigand dispersion is

### WELL NO. /TAG NO. 53-296-94

This report must be completed and submitted to the Department of Environmental Conservation 103 South Main Street (ION), Waterbury, VI 05676 na tarer than 60 days after completion of the self

#### State of Vermont

Dept. of Environmental Conservation 103 South Main Street (10 N) Waterbury, Vt. 05676
WELL COMPLETION REPORT

# . ALK 2.8 1994

DEPARTMENT USE ONLY
E.C. 502 U.S.G.S.
Field Location - Map area - Lat Db
Lottude Elev.
t goditude
Scale: 62,500 U,25,000 U, 24,000 U
Data in Town Files []
pech wood Lone Jericho, VT 0.54.
ant Mailing Address
LOT NO
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19. SITE MAP
Show permonent attractors such as buildings, septic sanse, and to
Indicate local street name and subdivision lot number
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Mta, Woll Co. Inc.
Company or Business Home
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		Cocation map arroched to	<u> </u>	
	WELL OWNER RMB Const	tuction, Inc.	9 Bep	chwood lane bericho, VI 05;
	OR Name	′ /	Permonent Mo	Hind woodses
61	WELL PURCHASER	¥	Permonent I	Mailing Address
2.	LOCATION OF WELL: TOWN	icho subdivisi	ON	LOT NO.
3.	DATE WELL WAS COMPLETED	- 20-94		
4.	PROPOSED USE OF WELL: Domestie	. Other		
5.	REASON FOR DRILLING WELL : WA		) Jeapan Ezisting Wa	olf, [] Teel or Exploration,
0.	· · ·	ovide Additional Supply, () Other		
6.	. DRILLING EQUIPMENT: (1) CODIA TOOLE	Rotory with A-P, Other	<del></del>	
7	TYPE OF WELL: 2 Open Hole in Bedroce .		] 01mr	
8.	TOTAL DEPTH OF WELL: 360			
9.	CASING FINISH! B Above ground, Finished, -	bore ground, Unfinished, 🗋 Burled, 🔲 In Pil,	Removed.	Hane used, O Other
Ю.	CASING DETAILS TOTAL AND 11			
11.	LINER OR INNER CASING DETAILS. L			
12.	METHOD OF SEALING CASING TO BE			
	•	Other		
13.				
	Slot Site, Depth to top of screen in feet	pelow land surfaceff , Grav	velpackifused. Gra	ival Size or Type
14,	YIELD TEST: O Boiled, O Pumped, O Compres			_
	· **	easured by & Bucket, 🛘 Orifoco pipe, 🗘 Y	Kler, 🖾 Water	Permanent Aleline Installed
15.	STATIC WATER LEVEL			
16:	WATER ANALYSIS! Has the water been analyzed			
17.	SPECIAL NOTES:			
18.	WELL LOG		<del> </del>	19. SITE MAP Show permonent structure such as buildings, exptic tanks, and for other land marks and indicate not less than two distances to like well
	Depth from Lond Surface Water Feel Feet Bearing	Formation Description	Skelch	fugicate local street name and subdivision lot number
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20	TESTED YIELD	WELL DRILLED BY:	andi	é. Baraul
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	Fgat Ggliens Per Minute	COONG BUSINESS AS:	Men	Company or Business Home
	360 241'3"	<del></del> 1 •	Ronita	I Smith
· .	- I	REPORT FILED BY:		N. JULIA

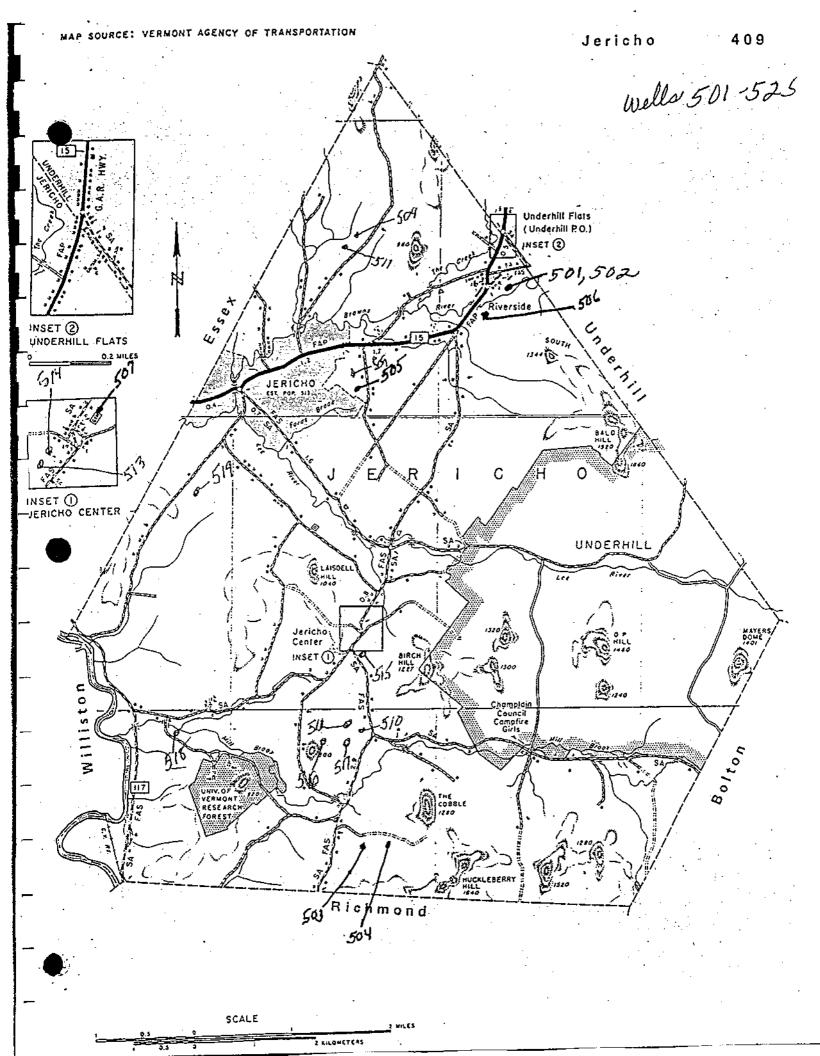
REPORT FILED BY:\_\_\_

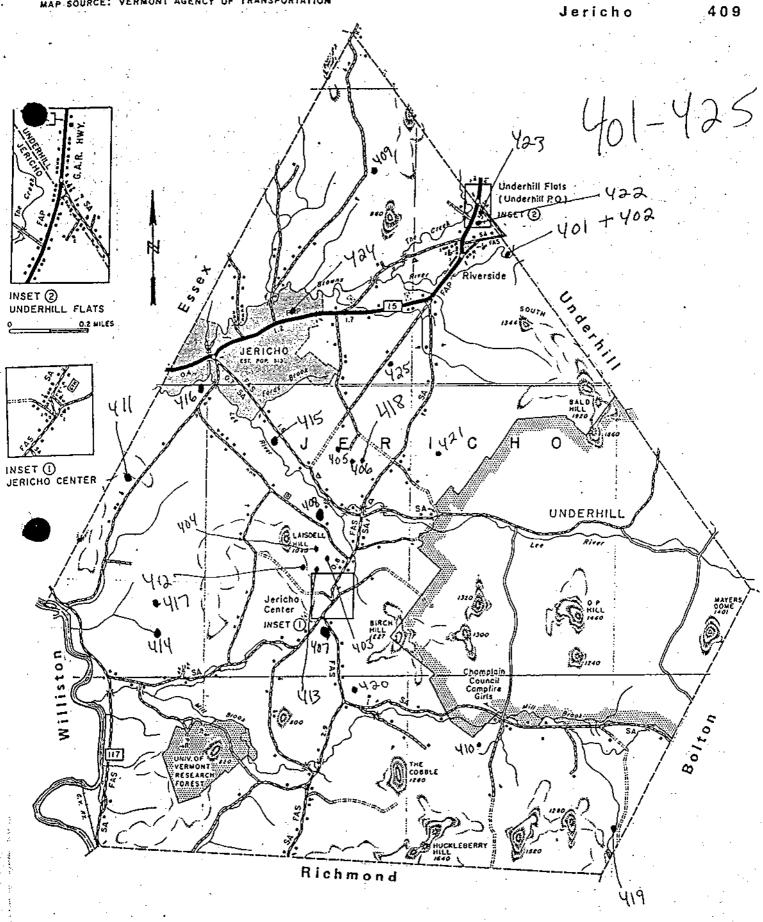
DEPARTMENT USE ONLY WELL NO. / TAG NO. Dept. of Environmental Conservation 506 . U.S.G.S.. 103 S. Main St., The Old Pantry Field Location | Map area. Waterbury, VT 05671-0403 This report must be completed and submitted to Latitude. Elev. WELL COMPLETION REPORT the Department of Environmental Conservation Longitude. Topo. Water Supply Division, 103 South Main Street, 18EP 1 5 19-1 Scale: 62,500 D, 25,000 D, 24,000 D The Old Pantry, Waterbury, VT 05671-0403 no Location map attached to WCR later than 60 days after completion of the well. Data in Town Files () WELL OWNER. OR WELL PURCHASER. Permanent Malling Address \_\_\_\_ SUBDIVISION . LOCATION OF WELL, TOWN . 2. 8-30-94 DATE WELL WAS COMPLETED 3. PROPOSED USE OF WELL ! D'OPARTIE. D'OIRE ... 4 REASON FOR DRILLING WELL! O'44- Supply. () Replace Exceling Supply. () Despan Existing Wall. () Test or Exploration. 5. D Pravide Adelitional Sapety, 🖯 Other \_\_ DRILLING EQUIPMENT: O caste feet & Retory with A-P. O Other 6. TYPE OF WELL Bossa Hate in Bedrack, O Open End Coung, O Screened or Statted; O Other .... 7 TOTAL DEPTH OF WELL: 200 8 CASING FINISH! D'Asone pround, l'unique. D'asone grande, Unitalibre, D'auried, D'in Pil, D'Asmared. D'Asse used, D'Other\_ 9 CASING DETAILS: Totallogin 18 11 Leagth believes 179 10 П METHOD OF SEALING CASING TO BEDROCK! Doing shop, I Great -- 1704 \_\_\_\_\_\_ YIELD TEST! O Boiled, O Praged, & Compression Air, tor by & Succeet, | Orifoce plas, | Wier, | Matter 15 WATER ANALYSIS, my the reter keen energied \* () Yes () He, If Yes, Where 16 SPECIAL NOTES: 17 19. SITE MAP WELL LOG 18 ignest atructure such as buildings, septic tanks, and for ether land marks and indicate not lass than two distances to Degit from Land Syrlace Formation Description F441 WEW 5ù Surface 62 50 62 1/0 135 135 WELL DRILLED BY: 20. TESTED YIELD 200

DATE OF REPORT:

WELL DRILLERS LIC NO.

State of Vermont

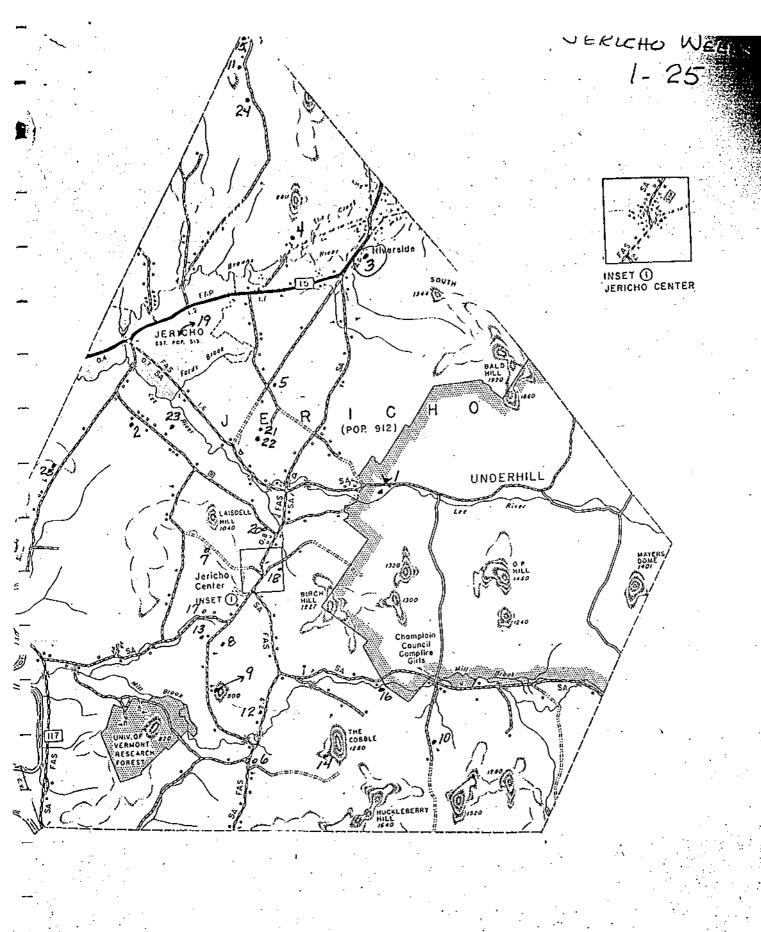


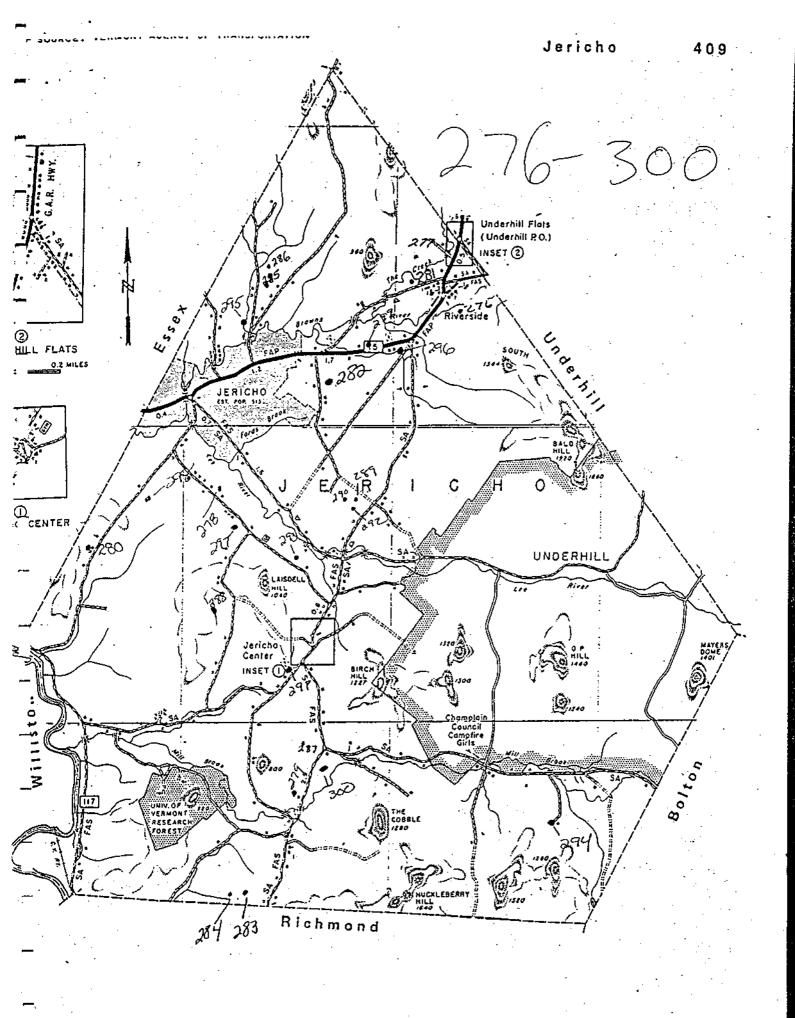


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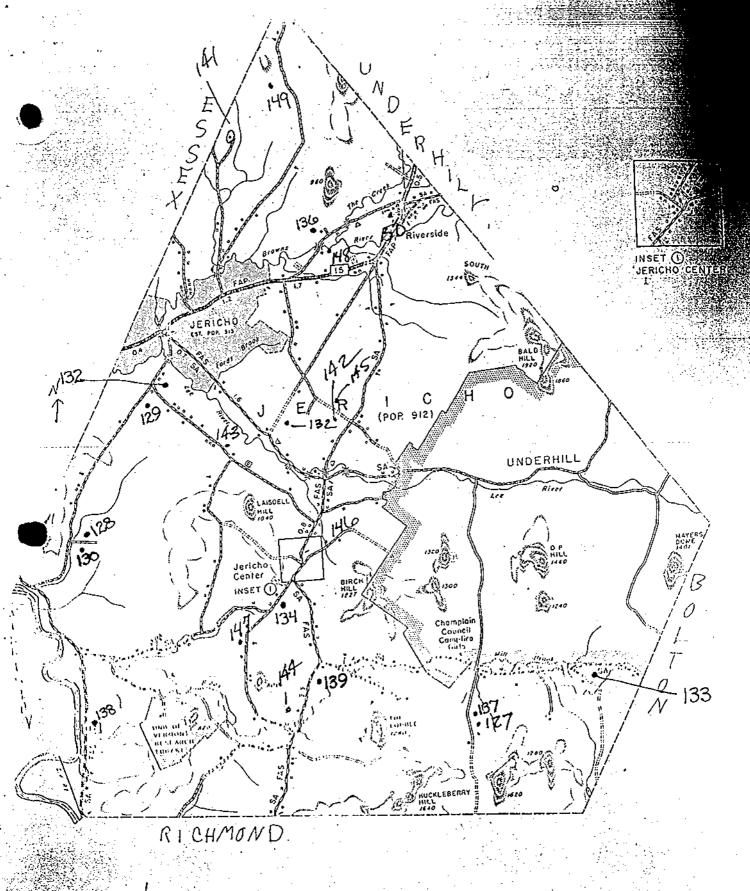
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SCALE



JERICHO 126-150

### WELL BORING ID: MW-101

Client / Site:	S.B. Collins, Inc. / Big John's
Location:	Route 15, Jericho, Vermont
Project Number:	04-22
	G. Adams, Adams Engineering
Drilling Method:	2 3/4" Vibratory spoon
Geologist:	S. French, Hoffer & Associates
Sampling Method:	2 3/4" Drive spoon
Date:	10/5/95
Weather:	Overcast, 50°
Boring location:	Recharge pit site

Well Construction Information					
Total Depth Drilled:	14.0' BGS				
Screen Type/Interval:	1.5" 10-slot PVC / 13.2' - 3.2' BGS				
Riser Type/Interval:	1.5" PVC / 3.2' - 0.2' BGS				
Sandpack Type/Interval:	#1 sand / 7.5' - 1.5' BGS				
<ul> <li>Seal Type/Interval:</li> </ul>	Bentonite / 1.5' - 0.5'				
Water Level/Date-Time:	6.85' / 10-19-95 / 0950				
Elevation Ground:	96.50'				
Elevation TOC:	96.00'				
Other:	Well pushed into place with drill rods, roadbox cemented in place.				

Sample Interval (fect BGS)	Total Driven / Recovery (feet)	Recovered Interval (feet)	Approximate Interval (feet BGS)	Sample Description	USDA / SCS Soil Classification	PID Reading* (ppm)
0.0 - 5.0 ripped bag,	5.0 / 2.5	0.0 - 1.5	0.0 - 2.0	Brown, fine sandy silt with round and angular pebbles and cobbles, roots, grass (fill).	silt loam	18.7
jumbled recovery	  - 	1.5 - 2.5	2.0 - 4.0	Yellowish brown silty form sand with minor lenses fine sand, angular gravel (fill).	sandy loam	2.0
5.0 - 10.0	5,0 / 3,5	0.0 - 0.7	5.0 - 6.0	Yellowish, brown silty fine sands with gravel to 3cm, roots (fill).	sandy loam	67.2
	·	0.7 - 1.3	6.0 - 6.5	Yellowish, medium to fine sand, well-sorted, gravel to 0.5cm.	sandy loam	1.5
		1.3 - 2.0	6.5 - 7.5	Very coarse sands and gravel, gray.	gravelly sand	0.9
•		2.0 - 3.4	7.5 - 9.0	Wet, poorly sorted gravel with fine sands and silt (10%).	gravelly sandy loam	1,5
		3,4 - 3,5	9.0 - 9.5	Olive, silty very fine sand with few gravels to 1cm, moist.	sandy loam	2,2
10.0 - 14.0	4.0 / 4.0	0.0 - 0.7	10.0 - 10.7	Gray, wet, poorly sorted sand and gravel, minor silt.	gravelly sandy loam	<del> </del>
	ripped bag	0.7 - 4.0	10.7 - 14.0	Olive brown, wet, silty very fine sand, well-sorted.	sandy loam	1,0

## Generalized Geologic Log and Other Observations:

0 - 15': Medium to coarse sand and gravel (fluvial).

Below 15': Glaciolacustrine fine to very fine sand and silts.

### Notes:

<sup>\* =</sup> Peak Headspace Reading, Photovac MircoTIP HL-2000, calibrated to isobutylene BGS = Below Ground Surface, NR = No Recovery

## **WELL BORING ID: MW-102**

Client / Site:	S.B. Collins, Inc. / Big John's
Location:	Route 15, Jericho, Vermont
Project Number:	04-22
Driller:	G. Adams, Adams Engineering
Drilling Method:	2 3/4" Vibratory spoon
Geologist:	S. French, Hoffer & Associates
Sampling Method:	2 3/4" Drive spoon
Date:	10/5/95
Weather:	Overcast, 50°
Boring location:	SE corner of Big John's store

Well Construction Inform	nation
Total Depth Drilled:	18.0' BGS
Screen Type/Interval:	1.5" 10-slot PVC / 16.0' - 6.0' BGS
Riser Type/Interval:	1.5" PVC / 6.0' - 0.2' BGS
Sandpack Type/Interval:	#1 sand / 8.0' - 4.2' BGS
Seal Type/Interval:	Bentonite / 4.2' - 1.0'
Water Level/Date-Time:	10.22' / 10-19-95 / 1010
Elevation Ground:	99.15'
Elevation TOC:	98.58'
Other:	Well pushed into place with drill rods, roadbox cemented in place.

Sample Interval (fect BGS)	Total Driven / Recovery (feet)	Recovered Interval (feet)	Approximate Interval (feet BGS)	Sample Description	USDA / SCS Soil Classification	PID Reading* (ppm)
0.0 - 5.0	5.0 / 3.5	0.0 - 0.6	0.0 - 1.0	Dark brown, silty fine sands with gravel, bark chips, grass (fill).	sandy loam	0.4
	] [	0.6 - 1.4	1.0 - 1.5	Yellowish brown, medium to coarse sand and gravel to 3cm.	gravelly sandy loam	3.1
		1.4 - 1.9	1.5 - 2.0	Yellowish red, moist, silty fine to medium sand with some pebbles to 1cm.	sandy loam	3.8
		1.9 - 3.5	2.0 - 4.0	Brown, silty medium to coarse sand and gravel, rock fragments to 6cm, poorly sorted.	gravelly sand	3,5
5.0 - 10.0	5.0 / 4.0	0.0 - 0.4	5.0 - 5.5	Loose, brown, poorly sorted medium to coarse sand and gravel, pebbles to 3cm.	gravelly sand	2.2
		0.4 - 2.1	5.5 - 7.2	Brown, dry fine sandy silt with occassional gravel to 2cm.	silt loam	2.5
		2.1 - 2.6	7.2 - 8.0	Yellowish brown, silty very fine sand.	sandy loam	1.7
	]	2.6 - 3.1	8.0 - 8.5	Grayish green, dry, silty fine sand, dry, well-sorted.	sandy loam	26.1
		3.1 - 4.0	8.5 - 9,5	Gray, poorly sorted, silty medium to coarse sand and gravel, cobbles to 6cm.	gravelly sandy loam	30.1
10.0 - 15.0	5.0 / 2.3	0.0 - 0.8	10.0 - 11.0	Same, as above.	gravelly sandy loam	29,1
		0.8 - 1.6	11.0 - 12.0	Dark gray-black (stained), poorly sorted fine to coarse sand and gravel (free product visible).	gravelly sandy loam	457.1
		1.6 - 2.3	12.0 - 14.0	Yellowish brown, fine to coarse sand and gravel, cobbles to 6cm, moist.	gravelly sandy loam	14.2

## WELL BORING ID: MW-102 (continued)

Sample	Total Driven /	Recovered	Approximate		USDA / SCS	PID
Interval	Recovery	Interval	Interval	Sample Description	Soil	Reading*
(feet BGS)	(feet)	(fect)	(feet BGS)		Classification	(ppm)
15.0 - 18.0	3,0 / 4.5	0.0 - 1.0	14.0 - 15.0	Reddish brown, fine sandy silt with occassional gravel to 1.5cm.	silt loam	4.4
		1.0 - 1.6	15.0 - 15.5	Gray brown, silty fine sand, well-sorted, but with few pebbles.	sandy loam	52.2
		1.6 - 2.1	i .	Dark gray (product stained), fine to coarse sand and gravel, wet with sheen.	gravelly loamy sand	1154.1
		2.1 - 3.3	16.0 - 17.0	Light yellow, poorly sorted, silty fine to coarse sand and gravel.	gravelly loamy sand	8.8
		3.3 - 4.5	17.0 - 18.0	Wet, well-sorted, silty very fine sand, yellow-olive brown.	sandy loam	2.1

## Generalized Geologic Log and Other Observations:

0 - 15': Medium to coarse sand and gravel (fluvial).

Below 15': Glaciolacustrine fine to very fine sand and silts.

### Notes:

\* = Peak Headspace Reading, Photovac MircoTIP HL-2000, calibrated to isobutylene BGS = Below Ground Surface, NR = No Recovery

### **WELL BORING ID: MW-103**

S.B. Collins, Inc. / Big John's
Route 15, Jericho, Vermont
04-22
G. Adams, Adams Engineering
2 3/4" Vibratory spoon
S. French, Hoffer & Associates
2 3/4" Drive spoon
10/5/95
Overcast, 50°
Near diesel pumps

Well Construction Information						
Total Depth Drilled:	17.6' BGS					
Screen Type/Interval:	1.5" 10-slot PVC / 16.0' - 6.0' BGS					
Riser Type/Interval:	1.5" PVC / 6.0' - 0.2' BGS					
Sandpack Type/Interval:	#1 sand / 10.0' - 2.0' BGS					
Seal Type/Interval:	Bentonite / 2.0' - 0.5'					
Water Level/Date-Time:	9.44' / 10-19-95 / 0930					
Elevation Ground:	99.04'					
Elevation TOC:	98.56'					
Other:	Well pushed into place with drill rods, roadbox cemented in place.					

Sample Interval (feet BGS)	Total Driven / Recovery (feet)	Recovered Interval (feet)	Approximate Interval (feet BGS)	Sample Description	USDA / SCS Soil Classification	PID Reading* (ppm)
0.0 - 5.0	5.0 / 2.8	0.0 - 0.6	0.0 - 1.0	Gray brown, moist, medium to coarse sand and gravel, pavement, (fill).		13.4
	[	0.6 - 1.5	1.0 - 2.0	Brown, dry, medium sand with some coarser gravels to 3cm, loose.	gravelly sand	8.4
		0.5 - 2.1	2.0 - 3.0	Dark brown, densely packed silty fine sand, dry, occassional rock fragments.	sandy loam	9.4
		2.1 - 2.8	3.0 - 4.0	Yellowish green to gray, silty very fine sand, well-sorted, slightly moist.	sandy loam	33.1
5.0 - 10.0	5.0 - 4.0	0.0 - 1.0	5.0 - 6.0	Dark brown, moist, fine sandy silt with coarse round gravels.	silt loam	9.7
	bag ripped,	1.0 - 1,4	6.0 - 6.5	Tan, well-sorted and dry, medium sand with trace silt.	loamy sand	2.2
	sample jumbled	1.4 - 1.9	6.5 - 7.0	Red, medium to coarse sand to coarse gravel (2cm), trace silt.	gravelly loamy sand	;
		1.9 - 4.0	7.0 - 9.5	Yellowish tan, loose, coarse sand and gravel (4cm), trace silt.	gravelly loamy sand	1.1
10.0 - 15.0	5.0 / 0.4	0.0 - 0.4		Gray brown, poorly sorted silty fine to coarse sand and gravels, moist.	gravelly loamy sand	2.5
15.0 - 17.6	2.6 / 3.0	0.0 - 0.2	14.0 - 14.5		gravelly loamy sand	
		0.2 - 3.0	14.5 - 17.5	Well-sorted, greenish brown, very fine sand, trace silt, few round pebbles.	sandy loam	0,5

### Generalized Geologic Log and Other Observations:

0 - 15': Medium to coarse sand and gravel (fluvial).

Below 15': Glaciolacustrine fine to very fine sand and silts.

### Notes:

\* = Peak Headspace Reading, Photovac MircoTIP HL-2000, calibrated to isobutylene BGS = Below Ground Surface, NR = No Recovery

## **WELL BORING ID: MW-104**

Client / Site:	S.B. Collins, Inc. / Big John's
Location:	Route 15, Jericho, Vermont
Project Number:	04-22
Driller:	G. Adams, Adams Engineering
Drilling Method:	2 3/4" Vibratory spoon
Geologist:	S. French, Hoffer & Associates
Sampling Method:	2 3/4" Drive spoon
Date:	10/10/95
Weather:	Clear & cool, getting warmer
Boring location:	Right on Big John's / Mills property line

Well Construction Information					
Total Depth Drilled:	18.0' BGS				
Screen Type/Interval:	1.5" 10-slot PVC / 15.4' - 5.4' BGS				
Riser Type/Interval:	1.5" PVC / 5.4' - 0.2' BGS				
Sandpack Type/Interval:	#1 sand / 10.0' - 2.5' BGS				
Seal Type/Interval:	Bentonite / 2.5' - 1.0'				
Water Level/Date-Time:	9,45' / 10-19-95 / 0920				
Elevation Ground:	98.02'				
Elevation TOC:	97.71'				
Other:	Well pushed into place with drill rods, roadbox cemented in place.				

Sample Interval (fect BGS)	Total Driven / Recovery (feet)	Recovered Approximate Interval Interval Sample Description (feet) (feet BGS)		USDA / SCS Soil Classification	PID Reading* (ppm)	
0.0 - 5.0	5.0 / 3.2	0.0 - 0.6	0.0 - 0.6	Dark brown, silty, fine to medium sand, pebbles, roots, grass.	silty loam	0.0
		0.6 - 2.5	0.6 - 3.0	Light brown, silty medium to coarse sand, poorly-sorted, rock fragments to 4cm, dry.	sandy loam	0.3
·		2.5 - 3.2	3.0 - 4.5	Dark brown, moist, silt with occassional coarse sand and angular pebbles to 0.5cm.	silt loam	0.3
5.0 - 9.9	4.9 / 3.0	0.0 - 0.2		Same, as above.	silt Ioam	0.3
		0.2 - 0.6		Light brown, loose, silty medium to coarse sand, pebbles to 1.5cm.	sandy Ioam	2.3
		0.6 - 2.2		Dark brown to light yellow to gray, well-sorted, very fine sandy silt, mottled.	silt loam	0.0
		2.2 - 3.5		Wet, gray with red mottling, poorly sorted fine to coarse sand and gravel, loose, silt (5%).	gravelly sandy loam	7.9
9.9 - 14.9	5.0 / 0.0					
14.9 - 18.0	3.0 / 2.7	0.0 - 0.9	15.0 - 16.0	Wet, poorly-sorted, yellow brown, medium to coarse sand and gravel, minor silt, cobbles.	gravelly sandy loam	3.1
		0.9 - 2.7	16.0 - 18.0	Wet, well-sorted, silty very fine sand, olive-yellow, occassional pebbles to 1cm.	sandy loam	3.2

Generalized Geologic Log and Other Observations:

0-15': Medium to coarse sand and gravel (fluvial).

Below 15'; Glaciolacustrine fine to very fine sand and silts.

### Notes:

\* = Peak Headspace Reading, Photovac MircoTTP HL-2000, calibrated to isobutylene BGS = Below Ground Surface, NR = No Recovery

### WELL BORING ID: MW-105

Client / Site:	S.B. Collins, Inc. / Big John's					
Location:	Route 15, Jericho, Vermont					
Project Number:	04-22					
	G. Adams, Adams Engineering					
Drilling Method:	2 3/4" Vibratory spoon					
	S. French, Hoffer & Associates					
Sampling Method:	2 <sup>3</sup> / <sub>4</sub> " Drive spoon					
Date:	10/10/95					
Weather:	Clear & cool, getting warmer					
Boring location:	On Mills/Big John's line, approx. between					
	MW-102 and MW-101					

Well Construction Inform	nation
Total Depth Drilled:	18.0' BGS
Screen Type/Interval:	1.5" 10-slot PVC / 16.0' - 6.0' BGS
	1.5" PVC / 6.0' - 0.2' BGS
Sandpack Type/Interval:	#1 sand / 11.0' - 3.6' BGS
Scal Type/Interval:	Bentonite / 3.6' - 0.5'
Water Level/Date-Time:	10.12' / 10-19-95 / 0950
Elevation Ground:	98.66'
Elevation TOC;	98.15'
Other:	Well pushed into place with drill rods, roadbox cemented in place.
*******	

Sample Interval (feet BGS)	Total Driven/ Recovery (feet)	Recovery Interval Interval Sample Description			USDA / SCS Soil Classification	PID Readings (ppm)
0.0 - 5.0	5.0 / 4.0	0.0 - 2.6		Pavement chunks.		1777
		2.6 - 3,6	2.5 - 3.5	Brown, moist, fine sandy silt with some coarse sand & angular pebbles.	silt loam	4.1
		3,6 - 4.0	3.5 - 4.0	Yellowish olive, dry, well-sorted, silty fine to very fine sand.	sandy loam	4.8
5,0 - 10,0	5.0 / 2.2	0.0 - 0.9	5.0 - 6.0	Same, as above.	sandy loam	5.5
		0.9 - 1.8	6.0 - 7.0	Light brown, silty medium sand with pebbles to 1cm, coarse gravel, red mottling.	sandy loam	4.4
		1.8 - 2.2	7.0 - 7.5	Gray-white, poorly sorted, fine to coarse sand & gravel with cobbles to 5cm.	gravelly sandy loam	2,9
10.0 - 15.0	5,0 / 1.7	0.0 - 0.8	5.0 - 6,0	Brown to light brown, silty, medium to coarse sand & gravel, dry & loose, cobbles.	gravelly sandy loam	
		0.8 - 0.9	6.0 - 6.1	Tar fragment.		
		0.9 - 1.5	6.1 - 7.0	Gray, green, moist, well-sorted medium sand with minor silt.	loarny sand	54.7
		1.5 - 1.7	7.0 - 7.5	Wet, yellowish brown, poorly-sorted, fine to coarse sand & gravel, cobbles.	gravelly sandy loam	
15.0 - 18.0	3.0 / 4.2	0.0 - 1.8	14.0 - 16.0	Same, as above.	gravelly sandy loam	
		1.8 - 4.2	16.0 - 18.0	Wet, olive green, well-sorted, fine to very fine sand with some silt.		37.3

Generalized Geologic Log and Other Observations:

0-15': Medium to coarse sand and gravel (fluvial).

Below 15': Glaciolacustrine fine to very fine sand and silts.

### Notes:

\* = Peak Headspace Reading, Photovac MircoTIP HL-2000, calibrated to isobutylene BGS = Below Ground Surface, NR = No Recovery

## **WELL BORING ID: MW-106**

Client / Site:	S.B. Collins, Inc. / Big John's
Location:	Route 15, Jericho, Vermont
Project Number:	04-22
Driller:	G. Adams, Adams Engineering
Drilling Method:	2 <sup>3</sup> / <sub>4</sub> " Vibratory spoon
	S. French, Hoffer & Associates
Sampling Method:	2 <sup>3</sup> / <sub>4</sub> " Drive spoon
Date:	10/10/95
Weather:	Clear & cool, getting warmer
Boring location:	North side of Mills campground road
<u> </u>	

Well Construction Inform	nation
Total Depth Drilled:	20.0' BGS
Screen Type/Interval:	1.5" 10-slot PVC / 17.5' - 7.5' BGS
Riser Type/Interval:	1.5" PVC / 7.5' - 0.5' BGS
Sandpack Type/Interval:	#1 sand / 12.5' - 5.0' BGS
Scal Type/Interval:	Bentonite / 5.0' - 1.0'
Water Level/Date-Time:	11.81' / 10-19-95 / 0910
Elevation Ground:	100.00'
Elevation TOC:	99.70'
Other:	Well pushed into place with drill rods, roadbox cemented in place.

Sample Interval (feet BGS)	Total Driven/ Recovery (feet)	Recovered Interval (feet)	Approximate Interval (feet BGS)	Sample Description	USDA / SCS Soil Classification	PID Reading* (ppm)
0.0 - 5.0	5.0 / 2.3	0.0 - 0.4	0.0 - 0.5	Dark brown, moist, fine sandy silt, roots, grass, topsoil.	silt loam	3.7
		0,4 - 2,3		Brown, loose, poorly sorted, medium to coarse sand & gravel with cobbles to 5cm, minor silt (fill).	sandy loam	3.6
5.0 - 10.0	5.0 / 3.5	0.0 - 0.8	5.0 - 6.0	Same, as above.	sandy loam	6.1
		0.8 - 1.4	6.0 - 6.5	Yellow green, well sorted, dry, very fine sandy silt.	silt loam	3.7
	1	1.4 - 2.3	6.5 - 7.5	Dry, loose, medium sand with some gravel (15%), minor silt.	sandy loam	2,9
		2.3 - 3.0	7.5 - 8.0	Same, as above, more gravel (50%).	gravelly sandy loam	<del></del>
10.0 - 15.0	5.0 / 3.0	3.0 - 3.5	8.0 - 8,5	Coarse sand & gravel with some silt, red mottling, cobbles to 5cm.	gravelly sandy loam	
		0.0 - 3.0	10.0 - 13.0	Tan/gray, mostly dry but wet at bottom, poorly sorted fine to coarse sand & gravel with minor silt (10%), cobbles.	gravelly sandy loam	
15.0 - 20.0	5,0 / 0,5	0.0 - 0.5	15.0 - 15.5	Wet, brown, medium sand and gravel, some silt.	gravelly sandy loam	2.5

### Generalized Geologic Log and Other Observations:

0 - 15': Medium to coarse sand and gravel (fluvial).

Below 15: Glaciolacustrine fine to very fine sand and silts.

### Notes:

\* = Peak Headspace Reading, Photovac MircoTTP HL-2000, calibrated to isobutylene BGS = Below Ground Surface, NR = No Recovery

**WELL BORING ID: MW-107** 

Client / Site:	S.B. Collins, Inc. / Big John's
Location:	Route 15, Jericho, Vermont
Project Number:	04-22
	G. Adams, Adams Engineering
Drilling Method:	2 <sup>3</sup> / <sub>4</sub> " Vibratory spoon
Geologist:	S. French, Hoffer & Associates
Sampling Method:	2 <sup>3</sup> / <sub>4</sub> " Drive spoon
Date:	10/10/95
Weather:	Clear & cool, getting warmer
Boring location:	South side of Mills campground road
DOMESTOCKEDING	Court of the Attendant

Well Construction Inform	nation
Total Depth Drilled:	20.0' BGS
Screen Type/Interval:	1.5" 10-slot PVC / 17.5' - 7.5' BGS
	1.5" PVC / 7.5' - 0.2' BGS
Sandpack Type/Interval:	#1 sand / 9.0' - 2.3' BGS
Seal Type/Interval:	Bentonite / 2.3' - 1.0'
Water Level/Date-Time:	11.39' / 10-19-95 / 1000
Elevation Ground:	99.26'
Elevation TOC:	99.05'
Other:	Well pushed into place with drill rods, roadbox cemented in place.

Sample Interval (feet BGS)	Total Driven/ Recovery (feet)	ery Interval Interval Sample Description		Sample Description	USDA / SCS Soil	PID Reading*
0.0 - 5.0	5.0 / 3.8	0.0 - 1.4	0.0 - 1.5	Brown, loose, poorly-sorted, medium to coarse sand & gravel (fill).	Classification	(ppm)
2.0 2.0	""	1.4 - 2.1	1.5 - 2.5	Dark brown-green, well-sorted, fine sandy silt, dry & massive.	sandy loam silt loam	5.2 3.6
		2.1 - 3.4	2.5 - 4.0	Same, as above, lighter & slightly moist.	silt loam	2,7
		3.4 - 3.8	4.0 - 4.5	Yellowish, medium sand, minor (10%) silt, moist, very well-sorted.	loamy sand	$\frac{2.7}{7.1}$
5.0 - 10.0	5.0 / 3.3	0.0 - 0.9	5,0 - 6,0	Same, as above.	loamy sand	4,7
		0.9 - 1,6	6.0 - 6.5	Tan, dry & loose, medium sand, minor (10%) silt, 20% gravels.	gravelly sandy loam	<del> </del>
		1.6 - 1.9	6.5 - 7.0	Same, as above, with more (45%) gravel.	gravelly sandy loam	
		1.9 - 2.4	7.0 - 7.5	Same, as above, red staining (mottling).	gravelly sandy loam	<del></del>
10,0 - 15.0	5.0 / 0.5	2.4 - 3.3	7.5 - 8.5	Tan, loose & poorly-sorted, medium to coarse sand & gravel.	gravelly sandy loam	
		0.0 - 0.5	10.0 - 11.0	Dark gray to black, wet, poorly-sorted, medium to coarse sand and gravel, angular & rounded cobbles to 3cm, minor silt.	gravelly sandy loam	
15.0 - 20.0	5.0 / 3.2	0.1 <b>-</b> 0.0	15.0 - 16.0	Brown, wet, poorly-sorted, silty fine to coarse sand & gravel.	gravelly sandy loam	17.0
		1.0 - 1.6	16.0 - 16.5	Dark gray, very coarse sand & gravel, wet, pebbles to 4cm.	gravelly sandy loam	40.0
ŀ		1.6 - 2.1	16.5 - 17.0	Silt lens: greenish, very fine sandy silt, red stained.	silt loam	32.0
	-	2.1 - 2.5	17.0 - 17.5	Very dark green, very coarse sand and gravel.	gravelly sandy loam	
1	1	2.5 - 3.2	17.5 - 18.0	Same, as above, with oil staining (old).	gravelly sandy loam	

### Generalized Geologic Log and Other Observations:

0-15': Medium to coarse sand and gravel (fluvial).

Below 15: Glaciolacustrine fine to very fine sand and silts.

### Notes:

\* = Peak Headspace Reading, Photovac MircoTIP HL-2000, calibrated to isobutylene BGS = Below Ground Surface, NR = No Recovery

# GROUNDWATER SAMPLING DATA SHEET

LOCATION: BIG JOHN'S - UNDERHILL / JETICHO
DATE: 10/19/95

SAMPLE METHOD: BAIL/PURGE - BAIL/SAMPLE 1.5" & Z"WALS Page 1 of 1
SAMPLING TEAM: 5. FRENCE

PID	Depth	Total	Water	3 Well	Total	Sample	Sample	Chain-of-C	Custody		1
Head	. to	Well	Column	Volumes*	Purged	Time	Туре	Number	Time	Remarks	
1	1	Depth	(ft)	(gals)	(gals)						
(ppm)	(ft)	(ft)									
NA -					>	10:15	D.1.	TB-01	0:15	TRIP BLANK - BIG BABBLE	Ju Bollu
NT NA				>	= 10 gais	(0:75	TAP-LW			FUEN AT BASCHENT THE AGREET	ZUMKING S
AN TAIS	2.92	5.50	2.58	0.71	0.75	11:40	G-162.	BIG TOHU'S			F= 12,
AA	11.81	17.50	5.49	1.51	1.65	12:00	6.W.	Mw-106	17:00		1
	9.45	15.40	5,75	1.59	1.75	12:15	6.6.	MW-104	12:15	u V	1
	9.44	15.00	6.36	1.75	1.80	12:35	6.60	MW-103			1
1	6.85	13.20	6.15	1.70	1.90	17:53	6.W.			li u	<u>-</u>
	10.12	16.00	5.68	1.57	1.40	1:10.	G.bs.	MW - 105	1:10	ti ji	1
	11.39	17.50	5.91	1.63	1.56	1:25	O.w.	MW-107	1:25	Jetrol oders Noted	-
	10.22	16.00	5.58	1.54	1.55	2:05	6.61.		2:05		,
or	10.25	[6,00	5.58	1.54	1.55	2:05	[				
	10.10	15.00	4.90	2.35	0.25	2:25	6.w.	MW-8		SHEEN & ODORS, Well Purped	DRY
	11.07	× 15.00	3.93	1.89							so in we
. •	10.81	×15.00	4.19	2.01			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				-
. NA					>	3:00	Cap.I.	FB-01	3:00	· · · · · · · · · · · · · · · · · · ·	1
				1						TICH BUTTE	1
											-
	4,4.2										-{
	Head Space (ppm) HA	Head to Space (ppm) (ft)  NA	Head Space (ppm) (ft) Well Depth (ppm) (ft) (ft)  NA	Head Space (Mater Depth (ft) (Mater (ppm) (ft) (ft) (ft) (ft) (ft) (ft) (ft) (ft	Head to Well Column Volumes* (ppm) (ft) (ft) (ft) (ft)  NA  NA  NA  NA  NA  NA  NA  NA  NA  N	Head Space (gals)  Water Depth (ft)  (ppm) (ft)  HA  AT NA  AT NA  11.81 17.50 5.49 1.51 1.65  Q.45 13.70 6.15 1.70 1.75  Q.44 16.00 5.68 1.77 1.50  10.12 16.00 5.68 1.57 1.60  10.22 16.00 5.58 1.54 1.55  10.10 15.00 4.90 2.35 0.25  10.81 × 15.00 4.19 7.01  NA  10.81 × 15.00 4.19 7.01  NA	Head Space (ppm) (ft) Well Depth (ft) (ft) (ft) (ft) (ft) (ft) (ft) (ft)	Head Space (ppm) (ft) (ft) (ft) (ft) (ft) (ft) (ft) (ft	Head Space (ppm) (ft) (ft) (ft) (ft) (gals) (gals) Time Type Number (ppm) (ft) (ft) (ft) (gals) (gals) Time Type Number (ppm) (ft) (ft) (ft) (ft) (gals) (gals) Time Type Number (ppm) (ft) (ft) (ft) (ft) (ft) (gals) (gals) (gals) Time Type Number (ppm) (ft) (ft) (ft) (gals) (gals) (gals) (gals) Time Type Number (ppm) (ft) (ft) (ft) (gals) (gals	Head Space (ppm) (ft) Well Column (ft) (gals) Purged (gals) Time Type Number Time (ppm) (ft) (ft) (ft) (ft) (ft) (ft) (ft) (ft	Head   No   Water   Depth   (ft)   Column   Volumes*   Purged   (gals)   Time   Type   Number   Time   Time   Remarks

<sup>\*</sup> (1.5" = 0.092 gals/ft, 2" = 0.16 gals/ft, 4" = 0.65 gals/ft, 6"=1.5 gals/ft)

REMARKS D. I = Descrized Ho; TAP = TAP SAMPLE; G.W. = GROUNDWOOTER; X= The dylas assorted

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Route 66 Professional Center, Randolph, VT 05060  Phone: (302)728-6313 Fax: (802)728-6044  Client: Jeff Hoffer and Associates Address: PO Box 428 Project # 70249 S.B. Collins, Inc. Contact: Tony French Waterbury, VT 05676 Phone No: 54 Lower Welden S.B. Collins, Inc. Date requested: 10/17/95 Requested by: TF/KED St. Albans, VT 0547  Project Name: Big John's Date shipped: 10/17/95 With Rod Date scheduled:  CHAIN OF CUSTODY RECORD DATE TIME  Sampled By:*  Accepted By:  Relinquished By:*  Relinquished By:*  Received by Scitest:  Item Client ID or Sampling Sampling Preservative Bottle Container Bottles per Parameters and Expiration Time	ites	t, Inc.						•			•			
Course of Professional Center, Randolph, VT 05060														
Project # 70249			, Randolph, V	T 05060									•	
Sampling   Sampling   Sampling   Sampling   Sampling   Sampling   Date   Sampling   Sa												D211 4 (	C-d Dymanacht	
Contact Tony French	ent: J	eff Hoffer and Asso	ciates	Address:	PO Box 42	8			Project#	70249				:
Date shipped:   Date shipped:   Date shipped:   Date shipped:   Date shipped:   Date sheduled:   Date sheduled:   Date sheduled:   Date sheduled:   Date shipped:   Date shi	ntact: T	Tony French	•		Waterbury	, VT 05676	i				*	5	54 Lower Weld	en St.
Date   Scheduled:   Scheduled				•					Requested	by:	TF/KED		St. Albans, VT	05478
CHAINOF CUSTODY RECORD   DATE   TIME   CAMPING   CAMPI	ject Na	ame: Big John's				10/17/95 V	Vith Rod					çç resun	is to: Plotter &	ASSOCS.
Received By:   Received by Scitest:   Received By:   Received by Scitest:   Received by Sci			<del></del>			TIME							DATE	TIME
Received by Scitest:			muh		10/19/96		Reling	uished E	By: Ptu	M	Fresh			
Item   Client ID or   Description   Date   Time   Matrix   Preservative   Bottle   Type   Volume   Sample   Sample   Sample   Type   Volume   Sample   Sample   ASAP   24 hrs   48 hrs   7days   7da	cepte	ed By: /					Relinqu	uished E	3 <i>y:</i> */			•	*	*
Nos   Description   Date   Time   Matrix   or Label   Type   Volume   Sample   ASAP   24 hrs   48 hrs   7 days   7 day	cepte	ed By:					Receiv	ed by S	citest:	,		•		
Nos   Description   Date   Time   Matrix   or Label   Type   Volume   Sample   ASAP   24 hrs   48 hrs   7 days   7 day	em C	Client ID or	Sampling	Sampling		Preservative	Bottle	Container	Bottles ner		Paramete	rs and Ev	niration Time	•
1 MILLS POINT 10/19/95 [0:25] GW-TIPHCI G 40 mL 2 EPA 8020 2 MW-A 11:20 GW HCI G 40 mL 2 EPA 8020 3 BIG TOHA'S POINT 11:40 GW HCI G 40 mL 2 EPA 8020 4 MW-106 17:00 GW HCI G 40 mL 2 EPA 8020 5 MW-104 17:15 GW HCI G 40 mL 2 EPA 8020 6 MW-103 17:35 GW HCI G 40 mL 2 EPA 8020 7 MW-101 17:53 GW HCI G 40 mL 2 EPA 8020 8 MW-105 11:10 GW HCI G 40 mL 2 EPA 8020 9 MW-107 11:25 GW HCI G 40 mL 2 EPA 8020 9 MW-107 11:25 GW HCI G 40 mL 2 EPA 8020 9 MW-107 11:25 GW HCI G 40 mL 2 EPA 8020					Matrix		Туре			ASAP				- >7day
2 MW-A  3 Bit John's Point  11:40 GW HCI G 40 mL 2  EPA 8020  4 MW-106  17:00 GW HCI G 40 mL 2  EPA 8020  5 MW-104  17:15 GW HCI G 40 mL 2  EPA 8020  6 MW-103  17:35 GW HCI G 40 mL 2  EPA 8020  7 MW-101  17:53 GW HCI G 40 mL 2  EPA 8020  17:53 GW HCI G 40 mL 2  EPA 8020  17:53 GW HCI G 40 mL 2  EPA 8020  17:53 GW HCI G 40 mL 2  EPA 8020  17:53 GW HCI G 40 mL 2  EPA 8020  17:53 GW HCI G 40 mL 2  EPA 8020  17:55 GW HCI G 40 mL 2  EPA 8020  EPA 8020  EPA 8020  EPA 8020  EPA 8020		·				<del>-</del> - ·	_Plastic/Glass		• .				•	
3 BIG JOHA'S POINT    11:40 GW HCI G 40 mL 2 EPA 8020  4 MW-106    17:00 GW HCI G 40 mL 2 EPA 8020  5 MW-104    17:15 GW HCI G 40 mL 2 EPA 8020  6 MW-103    17:35 GW HCI G 40 mL 2 EPA 8020  7 MW-101    17:53 GW HCI G 40 mL 2 EPA 8020  8 MW-105    1:10 GW HCI G 40 mL 2 EPA 8020  9 MW-107    1:25 GW HCI G 40 mL 2 EPA 8020    1:25 GW HCI G 40 mL 2 EPA 8020    1:25 GW HCI G 40 mL 2 EPA 8020    1:25 GW HCI G 40 mL 2 EPA 8020	1	MILLS POINT	10/19/95	10:25	GW-T-	HCI	G	40 mL	. 2				EPA 8020	
1   1   40 GW   HC    G   40 mL   2   EPA 8020     1   10   17:00 GW   HC    G   40 mL   2   EPA 8020     1   10   17:00 GW   HC    G   40 mL   2   EPA 8020     1   10   17:35 GW   HC    G   40 mL   2   EPA 8020     1   10   17:53 GW   HC    G   40 mL   2   EPA 8020     1   10   10   10   10   EPA 8020     1   10   10   10   G   40 mL   2   EPA 8020     1   10   10   10   G   40 mL   2   EPA 8020     1   10   10   10   10   G   40 mL   2   EPA 8020     1   10   10   10   10   G   40 mL   2   EPA 8020     1   10   10   10   10   10   10	2	mw-A		11:20	GŴ	HCI	G	40 mL	2				EPA 8020	
17:00 GW HCI G 40 mL 2 EPA 8020  5 MW-104 17:15 GW HCI G 40 mL 2 EPA 8020  6 MW-103 17:35 GW HCI G 40 mL 2 EPA 8020  7 MW-101 17:53 GW HCI G 40 mL 2 EPA 8020  8 MW-105 1:10 GW HCI G 40 mL 2 EPA 8020  9 MW-107 1:25 GW HCI G 40 mL 2 EPA 8020  1:25 GW HCI G 40 mL 2 EPA 8020  1:25 GW HCI G 40 mL 2 EPA 8020	3 BI	if John's Point		11:40	GW	HCI	G	40 mL	.2				•	
5 MW-104 17:15 GW HCI G 40 mL 2 EPA 8020 17:35 GW HCI G 40 mL 2 EPA 8020 17:35 GW HCI G 40 mL 2 EPA 8020 17:53 GW HCI G 40 mL 2 EPA 8020 17:53 GW HCI G 40 mL 2 EPA 8020 17:53 GW HCI G 40 mL 2 EPA 8020 17:55 GW HCI G 40 mL 2 EPA 8020 17:25 GW HCI G 40 mL 2 EPA 8020 17:25 GW HCI G 40 mL 2 EPA 8020	4 N	1W-106		17:00	GW	HCI	G	40 mL	2					
6 MW - 103  17:35 GW HCI G 40 mL 2  EPA 8020  7 MW - 101  17:53 GW HCI G 40 mL 2  EPA 8020  8 MW - 105  1:10 GW HCI G 40 mL 2  EPA 8020  9 MW - 107  1:25 GW HCI G 40 mL 2  EPA 8020  EPA 8020	5 <b>M</b>	w-104		12:15	GW	HCI	G	40 mL	2		•	, '		
7 MW - 101 17:53 GW HCI G 40 mL 2 EPA 8020 8 MW - 105 1:10 GW HCI G 40 mL 2 EPA 8020 9 MW - 107 1:25 GW HCI G 40 mL 2 EPA 8020  **Trequests hoffer 103_29_95.wb1	6 M	IW - 103				HCI	Ģ	40 mL	2		. •	٠.		
8 MW - 105   1:10 GW HCI G 40 mL 2 EPA 8020 9 MW - 107   1:25 GW HCI G 40 mL 2 EPA 8020  w:\tequests\hoffer\03_29_95.wb1	7 M	in - 101		_		HCI	G	40 mL	2					
9 MW - 107	8 N	lw - 105				HCI	G	40 mL	2 .				EPA 8020	
	9 <b>/</b>	4W - 107	1			HCI	G	40 mL	2				EPA 8020	
	requests	s\hoffer\03_29_95.wb1	. •						•					
		<del></del>			Preserve	Check:			Project No	s	LABORA1	ORY NUM	BER:	
Date:	ate:								1					

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Item Nos	Client ID or Description		ampling Time	Matrix	Preservative or Label	Bottle Type Plastic/Glass	Container Volume	Bottles per Sample	ASAP		and Exp 48 hrs	iration Time 7days	>7days
10	mw-102	10/19/45	2:05	GW	HCI	G	40 mL	2				EPA 8020	
11	Mw - 8		2:25	GW	HCI	G	40 mL	2				EPA 8020	
12	FB-01		3:00	e₩±.	HCI	G	40 mL	2				EPA 8020	•
13		•		GW	HCI	G	40 mL	2				EPA 8020	
14				GW	HCI	G	40 mL	2				EPA 8020	
15				GW	HCI	G	40 mL	2		,		EPA 8020	,
16		•		GW	HCI	G	40 mL	2				EPA 8020	
17	Trip Blank	10/19/95 18	):15	P.T.	HCI.		~40-mL	. 2				EPA 8020	



P.O. Box 339 Randolph, Vermont 05060-0339 (802) 728-6313

SB Collins, Inc. 54 Lower Welden Street St. Albans, VT 05478

Carl Ruprecht

Project Name: Customer Nos.:

\*\*1-Bromo-4-Fluorobenzene

Big John's 090048 Work Order No.: 9510-00643

Date Received:

10/20/95

Date Reported:

10/27/95

Sample Desc.: Hoffer-Mills Po Sample Date: 10/19/95	1111	O-H	m: 10.00		
Test Performed		Collection Time: 10:25			
1 est Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020			JPM	10/25/95
Methyl Tertiary Butyl Ether	EPA 8020	3	ug/L	JPM	10/25/95
Benzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
Toluene	EPA 8020	BPQL	ug/L	JPM	10/25/95
Ethyl Benzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
Total Xylenes	EPA 8020	BPQL	ug/L	JPM	10/25/95
Chlorobenzene	EPA 8020	BPQL	ug/L	JРM	10/25/95
1,2-Dichlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
1,3-Dichlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
1,4-Dichlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
Surrogate:			8	JPM	10/25/95
**1-Bromo-4-Fluorobenzene		98	% Recovery	JPM	10/25/95
Sample Desc.: Hoffer-MW-A	····				
Sample Date: 10/19/95			Time: 11:20		
Test Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020			JPM	10/05/05
Methyl Tertiary Butyl Ether	EPA 8020	669	110/T		10/25/95
Benzene	EPA 8020	682	ug/L	JPM	10/25/95
Toluene	EPA 8020	4090	ug/L	JPM JPM	10/25/95
Ethyl Benzene	EPA 8020	1330	ug/L	JPM	10/25/95
Total Xylenes	EPA 8020	8690	ug/L	JPM	10/25/95
Chlorobenzene	EPA 8020	< 200	ug/L		10/25/95
1,2-Dichlorobenzene	EPA 8020	< 200	ug/L	JPM JPM	10/25/95
1,3-Dichlorobenzene		< 200	ug/L		10/25/95
1,3-DICHIOLODCHCCHC	EPA 8020		ug/L	JPM	10/25/95
1 4-Dichlorobenzene	たひょ かいつい	~ 100	316/I	TDM 4	10/05/05
1,4-Dichlorobenzene Surrogate:	EPA 8020	< 200	ug/L	JPM JPM	10/25/95 10/25/95

99

% Recovery

JPM

10/25/95

Project Name: Big John's Project No.: 090048

Sample Desc.: Hoffer-Big John	s Point		m) 44.46		
Sample Date: 10/19/95			Time: 11:40		
Test Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020			JPM	10/25/95
Methyl Tertiary Butyl Ether	EPA 8020	10	ug/L	JPM	10/25/95
Benzene	EPA 8020	1	ug/L	JPM	10/25/95
Toluene	EPA 8020	BPQL	ug/L	JPM	10/25/95
Ethyl Benzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
Total Xylenes	EPA 8020	BPQL	ug/L	JPM	10/25/95
Chlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
1,2-Dichlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
1,3-Dichlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
1,4-Dichlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
Surrogate:	LI, 11 0020	DI QL	ug/ L	JPM	10/25/95
**1-Bromo-4-Fluorobenzene		97	% Recovery	JPM	10/25/95
1-Biomo-4-1 noroccizone		7,	70 Receivery	31 111	10/23/75
Sample Desc.: Hoffer-MW-106					
Sample Date: 10/19/95			Time: 12:00		
Test Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020			JPM	10/25/95
Methyl Tertiary Butyl Ether	EPA 8020	3	ug/L	JPM	10/25/95
Benzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
Toluene	EPA 8020	3	ug/L	JPM	10/25/95
Ethyl Benzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
Total Xylenes	EPA 8020	5	ug/L	JPM	10/25/95
Chlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
1,2-Dichlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
1,3-Dichlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
1,4-Dichlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
Surrogate:		<b>~-</b>	. 0	JPM	10/25/95
**1-Bromo-4-Fluorobenzene		96	% Recovery	JPM	10/25/95
* *************************************			•		
Sample Desc.: Hoffer-MW-104					
Sample Date: 10/19/95			Time: 12:15		
Test Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020			JPM	10/25/95
Methyl Tertiary Butyl Ether	EPA 8020	14	ug/L	JPM	10/25/95
Methyl Terriary Buryl Biner					



Project Name: Big John's Project No.: 090048

Sample Desc.: Hoffer-MW-104					
Sample Date: 10/19/95			Time: 12:15		
Test Performed	Method	Results	Units	Analyst	Analysis Date
- Toluene	EPA 8020	2	ug/L	JPM	10/25/95
Ethyl Benzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
Total Xylenes	EPA 8020	BPQL	ug/L	JPM	10/25/95
_ Chlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
1,2-Dichlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
1,3-Dichlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
1,4-Dichlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
Surrogate:	2111 0020	2, 42	ug/ D	JPM	10/25/95
**1-Bromo-4-Fluorobenzene		98	% Recovery	JPM	10/25/95
					_
Sample Desc.: Hoffer-MW-103 Sample Date: 10/19/95		Collection	Time: 12:35		
Test Performed	Method	Results	Units	Amaleise	Amalauda Mata
_ Test Performed	METHOO	Resuns	Onits	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020			JPM	10/25/95
Methyl Tertiary Butyl Ether	EPA 8020	4	ug/L	JPM	10/25/95
Benzene	EPA 8020	15	ug/L	JPM	10/25/95
Toluene	EPA 8020	3	ug/L	JPM	10/25/95
Ethyl Benzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
- Total Xylenes	EPA 8020	7	ug/L	JPM	10/25/95
Chlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
1,2-Dichlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
1,3-Dichlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
1,4-Dichlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
Surrogate:		_	•	JPM	10/25/95
**1-Bromo-4-Fluorobenzene		98	% Recovery	JPM	10/25/95
Sample Desc.: Hoffer-MW-101 Sample Date: 10/19/95		Collection	Time: 12:53		
Test Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020			JPM	10/25/95
Methyl Tertiary Butyl Ether	EPA 8020	9	ug/L	JPM	10/25/95
Benzene	EPA 8020	ĺ	ug/L	JPM	10/25/95
Toluene	EPA 8020	2	ug/L	JPM	10/25/95
- Bthyl Benzene	EPA 8020	BPQL	ug/L ug/L	JPM	10/25/95
Total Xylenes	EPA 8020	BPQL	ug/L ug/L	JPM	10/25/95
TOTAL ASTOLICS	LIFA OVAV	אל זת	45/12	J 1 1 1 1	



Project Name: Big John's Project No.: 090048

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Project Name: Big John's Project No.: 090048

_	Commis Dans IV-65 - MVV 107	·				
.,. —.	Sample Desc.: Hoffer-MW-107 Sample Date: 10/19/95		Callagia	TC: 10.05		
	Test Performed	Method	Results	Time: 13:25 Units	Analyst	Analysis Date
	1,4-Dichlorobenzene Surrogate:	EPA 8020	< 200	ug/L	JPM JPM	10/25/95 10/25/95
	**1-Bromo-4-Fluorobenzene		94	% Recovery	JPM	10/25/95
_	Sample Desc.: Hoffer-MW-102		<u> </u>			
	Sample Date: 10/19/95		Collection	Time: 14:05		
-	Test Performed	Method	Results	Units	Analyst	Analysis Date
	Aromatic Volatile Organics	EPA 8020			JPM	10/25/95
	Methyl Tertiary Butyl Ether	EPA 8020	686	ug/L	JPM	10/25/95
	Benzene	EPA 8020	678	ug/L	JPM	10/25/95
	Toluene	EPA 8020	3540	ug/L	JPM	10/25/95
	Ethyl Benzene	EPA 8020	1240	ug/L	JPM	10/25/95
	Total Xylenes	EPA 8020	7620	ug/L ug/L	JPM	10/25/95
	Chlorobenzene	EPA 8020	< 200	ug/L	JPM	10/25/95
	1,2-Dichlorobenzene	EPA 8020	< 200	ug/L	JPM	10/25/95
_	1,3-Dichlorobenzene	EPA 8020	< 200	ug/L ug/L	JPM	10/25/95
	1,4-Dichlorobenzene	EPA 8020	< 200	ug/L	JPM	10/25/95
	Surrogate:		<b>\ 200</b>	ug/L	JPM	
~	**1-Bromo-4-Fluorobenzene		95	% Recovery	JPM	10/25/95 10/25/95
	Sample Desc.: Hoffer-MW-8		<del></del>	<del></del>		·
	Sample Date: 10/19/95		Collection '	Time: 14:25		
	Test Performed	Method	Results	Units	Analyst	Analysis Date
	Aromatic Volatile Organics	EPA 8020			JPM	10/25/95
	Methyl Tertiary Butyl Ether	EPA 8020	12200	ug/L	JPM	10/25/95
	Benzene	EPA 8020	1860	ug/L	JPM	10/25/95
	Toluene	EPA 8020	10600	ug/L	JPM	10/25/95
	Ethyl Benzene	EPA 8020	1060	ug/L	JPM	10/25/95
	Total Xylenes	EPA 8020	16400	ug/L	JPM	10/25/95
	Chlorobenzene	EPA 8020	< 200	ug/L	JPM	10/25/95
	1,2-Dichlorobenzene	EPA 8020	< 200	ug/L	JPM	10/25/95
	1,3-Dichlorobenzene	EPA 8020	< 200	ug/L	JPM	10/25/95
	1,4-Dichlorobenzene	EPA 8020	< 200	ug/L	JPM	10/25/95
	Surrogate: **1-Bromo-4-Fluorobenzene			J	JPM	10/25/95



Project Name: Big John's Project No.: 090048

Sample Date: 10/19/95		Collection	Time: 15:00		
Test Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020			JPM	10/25/95
Methyl Tertiary Butyl Ether	EPA 8020	BPQL	ug/L	JPM	10/25/95
Benzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
Toluene	EPA 8020	BPQL	ug/L	JPM	10/25/95
Ethyl Benzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
Total Xylenes	EPA 8020	BPQL	ug/L	JPM	10/25/95
Chlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
1,2-Dichlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
1,3-Dichlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
1,4-Dichlorobenzene	EPA 8020	BPQL	ug/L	JPM	10/25/95
Surrogate:	•			JPM	10/25/95
**I-Bromo-4-Fluorobenzene		99	% Recovery	JPM	10/25/95
Sample Desc.: Hoffer-Trip Bla	nk			<del></del>	
		0.11 .:	m: 10.15		
Sample Date: 10/19/95	Mark and		Time: 10:15		
Test Performed	Method	Collection Results	Time: 10:15 Units	Analyst	Analysis Date
Test Performed				•	·
Test Performed  Aromatic Volatile Organics	EPA 8020	Results	Units	JPM	10/25/95
Test Performed  Aromatic Volatile Organics Methyl Tertiary Butyl Ether	EPA 8020 EPA 8020	Results BPQL	Units ug/L	JPM JPM	10/25/95 10/25/95
Test Performed  Aromatic Volatile Organics Methyl Tertiary Butyl Ether Benzene	EPA 8020 EPA 8020 EPA 8020	Results BPQL BPQL	Units ug/L ug/L	JPM JPM JPM	10/25/95 10/25/95 10/25/95
Test Performed  Aromatic Volatile Organics Methyl Tertiary Butyl Ether Benzene Toluene	EPA 8020 EPA 8020 EPA 8020 EPA 8020	Results  BPQL  BPQL  BPQL	Units  ug/L  ug/L  ug/L	JPM JPM JPM JPM	10/25/95 10/25/95 10/25/95 10/25/95
Aromatic Volatile Organics Methyl Tertiary Butyl Ether Benzene Toluene Ethyl Benzene	EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020	Results  BPQL  BPQL  BPQL  BPQL  BPQL	Units  ug/L  ug/L  ug/L  ug/L  ug/L	JPM JPM JPM JPM JPM	10/25/95 10/25/95 10/25/95 10/25/95 10/25/95
Aromatic Volatile Organics Methyl Tertiary Butyl Ether Benzene Toluene Ethyl Benzene Total Xylenes	EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020	Results  BPQL BPQL BPQL BPQL BPQL BPQL	Units  ug/L  ug/L  ug/L  ug/L  ug/L  ug/L	JPM JPM JPM JPM JPM JPM	10/25/95 10/25/95 10/25/95 10/25/95 10/25/95 10/25/95
Test Performed  Aromatic Volatile Organics Methyl Tertiary Butyl Ether Benzene Toluene Ethyl Benzene Total Xylenes Chlorobenzene	EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020	Results  BPQL BPQL BPQL BPQL BPQL BPQL BPQL	Units  ug/L  ug/L  ug/L  ug/L  ug/L  ug/L  ug/L  ug/L	JPM JPM JPM JPM JPM JPM JPM	10/25/95 10/25/95 10/25/95 10/25/95 10/25/95 10/25/95 10/25/95
Test Performed  Aromatic Volatile Organics Methyl Tertiary Butyl Ether Benzene Toluene Ethyl Benzene Total Xylenes Chlorobenzene 1,2-Dichlorobenzene	EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020	Results  BPQL BPQL BPQL BPQL BPQL BPQL BPQL BPQ	Units  ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/	JPM JPM JPM JPM JPM JPM JPM JPM JPM	10/25/95 10/25/95 10/25/95 10/25/95 10/25/95 10/25/95 10/25/95 10/25/95
Test Performed  Aromatic Volatile Organics Methyl Tertiary Butyl Ether Benzene Toluene Ethyl Benzene Total Xylenes Chlorobenzene 1,2-Dichlorobenzene 1,3-Dichlorobenzene	EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020	Results  BPQL BPQL BPQL BPQL BPQL BPQL BPQL BPQ	Units  ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/	JPM	10/25/95 10/25/95 10/25/95 10/25/95 10/25/95 10/25/95 10/25/95 10/25/95 10/25/95
Test Performed  Aromatic Volatile Organics Methyl Tertiary Butyl Ether Benzene Toluene Ethyl Benzene Total Xylenes Chlorobenzene 1,2-Dichlorobenzene	EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020 EPA 8020	Results  BPQL BPQL BPQL BPQL BPQL BPQL BPQL BPQ	Units  ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/	JPM JPM JPM JPM JPM JPM JPM JPM JPM	10/25/95 10/25/95 10/25/95 10/25/95 10/25/95 10/25/95 10/25/95 10/25/95

BPQL = Below Practical Quantitation Level; 1 ug/L



c: Hoffer & Associates

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## ANALYTICAL REPORT

Project Name: Big John's Project No.: 090048

